

Multiple Pathways to Student Success

**Envisioning the
New California
High School**



**A Report to the Legislature and Governor
Pursuant to Chapter 681, Statutes of 2008**

**California Department of Education
Sacramento, 2010**

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Jack O'Connell, State Superintendent of Public Instruction
California Department of Education

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A Message from the State Superintendent of Public Instruction

California is at a critical crossroads in terms of the challenges it faces in reforming its public high school system. Amid extensive ongoing discussion in state policy forums, there continues to be persistent pressure for the state to lead efforts to improve graduation rates, close achievement and opportunity gaps, and prepare all students for success in pursuing both “living-wage” careers and a variety of postsecondary learning experiences. The task before us is an enormous and difficult one, and it is clear that we must embrace new, innovative approaches to educational transformation that are likely to lead to highly successful outcomes for our students, families, and communities.

California has long been a national leader in the development of rigorous, comprehensive standards and curriculum frameworks as the foundation for our educational programs, and our state is once again leading the nation with the publication of this report on the feasibility of implementing and expanding the multiple pathway approach in California’s public high schools. Pathways in this approach that effectively integrate both academic and career technical content, problem-based instructional strategies, work-based-learning opportunities, and support services have the potential to transform our state’s public high schools into twenty-first century learning centers that effectively prepare all students to pursue multiple options beyond high school graduation. Toward that end, the California Department of Education is pleased to provide in this report a compendium of research, analysis, and policy recommendations on a host of topics related to the multiple pathways approach in particular and to high school transformation in general.

Transformation of our high schools requires a vision of success for our public school system, a solid policy foundation, and the development of strategies that can help all students prepare for and be ready to pursue multiple options beyond high school. In addition to this vision, the policy recommendations in this report provide a foundation for the future. With the adoption of these recommendations by the Legislature, our schools and districts can begin to create and sustain the effective strategies needed to implement a new approach to high school education that will benefit our youth, our communities, and our economy.

I appreciate the leadership of former Assembly Speaker Karen Bass; Senate President pro Tempore Darrell Steinberg; State Senator Loni Hancock; Assembly Members Wilmer Amina Carter, Mike Eng, Warren Furutani, and Anthony Portantino; and former Assembly Member Patty Berg in supporting the exploration of multiple pathways as a school improvement strategy. These individuals authored Assembly Bill 2648 in 2008 that led to this report.

I also want to acknowledge that the multiple pathways approach owes much to philanthropic, education, and civic groups that recognize the success and promise of these kinds of programs in engaging students and preparing them for future options. In recent years, the multiple pathways approach has been significantly advanced thanks to the efforts of The James Irvine Foundation; ConnectEd: The California Center for College and Career; the Los Angeles Chamber of Commerce;

and the Linked Learning Alliance, an alliance of more than 140 representatives of education, industry, and community organizations and other individuals seeking to improve California's high schools. Collectively and individually, these entities, in concert with many others, have played a pivotal role in promoting the expansion of the multiple pathways approach in California. Their foresight and contributions to improve California's high schools are deeply appreciated.

The multiple pathways approach is one of the most promising high school transformational strategies we have seen in decades, and it can certainly be expanded on a statewide basis to play an even more pivotal role in enabling all our students to be well-prepared for life in a twenty-first century global economy and society. Please join me in pursuing this vision for the future of California's high school system.

Jack O'Connell

State Superintendent of Public Instruction

Acknowledgments

The California State Superintendent of Public Instruction's Assembly Bill (AB) 2648 report, *Multiple Pathways to Student Success*, is a first-in-the-nation publication on the feasibility of expanding the multiple pathways approach statewide. With the legislative enactment of AB 2648, California becomes the first state to codify an explicit definition of this promising high school reform approach. The approach incorporates four components: an integrated, multi-year high school program with an academic core; a career technical core; a work-based learning component; and support services.

This report to the Legislature and the Governor grounds its feasibility analysis in research on the development and educational needs of young adults and the challenges California's high schools face. Above all, it examines the practices effective schools employ to engage students in learning, increase graduation rates, close achievement and opportunity gaps, and prepare all students for success beyond high school – in both their postsecondary learning experiences and their future careers. The report also includes policy recommendations that were formulated based on extensive input received from dozens of individuals and organizations with an interest in the multiple pathways approach. Of special importance are the many stakeholders identified in AB 2648 with whom the State Superintendent consulted throughout the report's development (see Stakeholders, page 209).

This report was developed for the State Superintendent by staff from the Secondary, Career, and Adult Learning Division and the P-16 Division, California Department of Education (CDE), under the direction of Deputy Superintendent Deb V.H. Sigman, Deputy Superintendent Cindy Cunningham, former Deputy Superintendent Rick Miller, and Assistant Superintendent Patrick Ainsworth. The AB 2648 team included the following CDE staff: Keith Edmonds, Penni Hansen, Lloyd McCabe, Charles Parker, Joseph Radding, and Chris Reeve. Other CDE staff from many divisions also participated in reviews of draft chapters and policy recommendations, and provided many helpful comments and suggestions.

This report reflects an extensive volume of research, analysis, and writing performed by a team from WestEd under the direction of Fred Tempes, principal investigator; Svetlana Darche and Rose Owens-West, co-project directors; Janice Lowen Agee, editor; Teresa Maldonado, research assistant; and Scott Sargent, program coordinator. The CDE also acknowledges the assistance provided by David Rattray and Chelsey Rask of the Los Angeles Area Chamber of Commerce.

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Chapter I. Introduction

California must significantly improve secondary education because today's increasingly competitive global economy demands that we prepare all students to be critical thinkers, high-level problem solvers, and lifelong learners. To address this demand, it is imperative for California to establish a new vision for its California high schools that combines both transformative new approaches as well as strengthened and expanded existing programs. In particular, the multiple pathways approach has been identified as one of the most promising models for high school transformation.

As a systemic districtwide high school transformation initiative, the multiple pathways approach is intentionally designed to ensure that more students graduate from high school prepared to take advantage of postsecondary educational *and* career opportunities without the need for remediation.¹ Within a district's multiple pathways system are individual pathways that each offer high school students four key components: an integrated core academic curriculum; an integrated core career technical curriculum; a series of work-based-learning opportunities; and student support services. The California Legislature, recognizing the importance of the multiple pathways approach, enacted Assembly Bill 2648 (Bass), which called for a report from the State Superintendent of Public Instruction to explore the feasibility of establishing and expanding the multiple pathways approach in California.²

Superintendent O'Connell has noted, "Multiple pathways can offer an exciting opportunity to transform the high school experience and offer students more academic rigor, curriculum that is relevant to the real world, and relationships with caring adults, leading to more students who are college- and career-ready at the end of high school" (California Department of Education [CDE], 2009, April).

To develop the report *Multiple Pathways to Student Success: Envisioning the New California High School*, the State Superintendent has sought information and feedback from a wide range of stakeholders, including representatives from state agencies, postsecondary educational institutions, kindergarten through grade twelve (K–12) education, teacher and administrator organizations, businesses, community leaders, parents, students, and researchers. Based on the interviews, focus groups, literature review, and survey results of this field study, it is clear that there is a debate under way in California, as well as across the country, about the best ways to improve high schools. Among stakeholder groups and organizations, however, there appears to be a growing consensus that:

- California is not succeeding in preparing students for ongoing education and employment in the twenty-first century.

1 Postsecondary and career in this document incorporate the full range of postsecondary educational options, including four-year universities, community college, apprenticeship, specialized career training, and the military.

2 Some educators now prefer the name "linked learning." To be consistent with the legislation, this report uses the original terminology in the legislation: multiple pathways.

- California needs a stronger unifying vision of the purposes of high school in preparing graduates for ongoing education³ and career opportunities.

Implementation of the multiple pathways approach statewide — partly because it seeks to integrate academic and career technical education — can help inform and exemplify a statewide vision for student success.

BACKGROUND AND CHALLENGES

The multiple pathways approach is a next step for improving California's high schools, based on efforts that started in 1992 when the California Department of Education released *Second to None: A Vision of the New California High School*. That report called for "a strong academic foundation in the first two years of high school and demanding, yet flexible, program majors for students in grades eleven and twelve" (CDE, 1992). Although this vision led to some progress in high school reform, the continuing need to improve student achievement spurred the development and release ten years later of *Aiming High: High Schools for the 21st Century*. *Aiming High*, built on the legacy of *Second to None*, was designed to help schools produce graduates with higher levels of achievement and skills based on the state's standards and accountability system.

During the years since the release of *Aiming High*, Superintendent O'Connell has spearheaded a number of high school improvement efforts, stating: "We simply must concentrate attention on our high schools — not to disparage the work of the thousands of teachers and administrators who educate our teens, but to give high schools the same types of focused, comprehensive assistance we have given our elementary and middle schools" (CDE, 2005). Demonstrating his commitment to improving high schools and outcomes for high school students, the Superintendent has sponsored the High Performing High Schools Initiative to boost high school achievement, the creation of the California High School Exit Examination (CAHSEE), and the Closing the Achievement Gap initiative. In addition, California has also developed standards and a curriculum framework for career technical education (CTE) and has expanded the criteria for the California Distinguished Schools Program to include special recognition for high schools with outstanding programs in career technical education.

The multiple pathways approach is not new. California does have successful programs in place that reflect the goals of the multiple pathways approach, such as the state's 478 California Partnership Academies (CPAs). Partnership Academies are an example of a pathway approach combining academics with a career focus that appears to have a positive impact on students who participate. CPAs engage students in a system of integrated academic and career technical course work that is rigorous and project-based, relevant, and engaging, and also connects students, faculty, and business leaders in new productive relationships. While CPAs have proven to be a successful strategy, the number of students enrolled in CPAs represents less than 3 percent of the nearly two million high

³ Not all high school graduates will choose to attend college or university, but to earn a self-sustaining income, they will need to be prepared for ongoing education or training of some kind. *Multiple Pathways to Student Success* uses the terms "ongoing education," "education beyond high school," and "postsecondary education" to refer to the full range of public and private education and training programs beyond the high school level, including but not limited to, career technical training programs, military training and education programs, community college programs, career technical colleges, four-year colleges, and universities.

school students enrolled in California's high schools, and Superintendent O'Connell has sponsored legislation to expand this program. He noted, "Partnership Academies combine rigorous academics with a career focus and are proven to have a dramatic positive impact on students who participate. Research shows that students stay engaged in school when they are connected with caring adults and when they can see the real-world relevance of the skills they are learning. That's why California Partnership Academies are so successful, even for students at risk of academic failure or dropping out of schools" (CDE, 2005).

California is not alone in its efforts to address improvements in secondary schools. Transforming high schools and preparing more students for success in postsecondary educational and career pursuits are national issues. The statistics for persistently high dropout rates and low student achievement, including a troubling achievement gap, point to a national crisis in secondary education. Across the country, policy makers and educators are grappling with the issue of how to improve our secondary schools and better prepare young people for life and work in the twenty-first century.

Other initiatives that have fostered the multiple pathways approach to transform high schools to increase students' success have been supported and developed by The James Irvine Foundation, which has provided critical support for promoting quality pathways. The James Irvine Foundation supported the development of a research base for the multiple pathways approach and founded ConnectEd: The California Center for College and Career in 2006 to provide an anchor institution that could focus on supporting quality implementation and expansion of this effort. With additional support from The James Irvine Foundation, ConnectEd launched a district initiative that provides planning and implementation grants and technical assistance to ten school districts. At the time of this report, ConnectEd had awarded six implementation grants and four continued planning and development grants.

In tandem with these targeted efforts, a diverse coalition of more than 140 representatives of education, industry, community, philanthropic organizations, and other individuals seeking to improve California's high schools and prepare students for postsecondary education and careers has come together to support this vision for transforming high schools. Through the statewide Linked Learning Alliance (previously called the Coalition for Multiple Pathways), this broad array of stakeholders shares strategies, provides a unified voice, and maintains a concerted effort to sustain this transformative work. It is expected that the Alliance will continue to bring a collective voice and coordinated effort in expanding student access to pathways in California.

One of the key challenges in our secondary schools is to adequately prepare students to effectively meet the challenges of postsecondary education and careers. The world of work is changing rapidly — as it has been for at least two decades. This transformation involves new positions, fields, and enterprises, as well as new responsibilities in existing positions and fields:

The evolution of automobile electronics has transformed many visible, mechanical components into opaque electronic modules. As a result, a mechanic can no longer function without the ability to read, to work with computerized testing equipment and to construct mental models of a problem (Levy & Murnane, 2005).

This ratcheting up of job skills is particularly important in technological, communications and other industries prevalent in California. State business leaders consistently report that they need a pipeline of prospective entry-level employees who can read, write, solve problems, communicate with others, think critically, and be responsible for their work (Tulchin & Muehlenkamp, 2007; de Cos, Chan, & Salling, 2009). Other organizations echo these concerns. The Partnership for 21st Century Skills has highlighted a wide range of high-level skills that are important in the fastest growing job sectors. These skills include critical thinking and problem solving, excellent communication, collaboration, and creativity and innovation skills (<http://www.21stcenturyskills.org>).

While some California employers expect high schools to prepare students for specific positions in industry – with industry certifications, in addition to basic career technical and academic skills – many employers expect high schools to provide students with strong academic and career readiness skills that will allow them to pursue further education or training and to adapt quickly to the changing demands of the workplace (Executive Office of the President, 2009).

Meanwhile, California high school students learn about career and ongoing educational options in various ways, depending largely on their own awareness and interests, the guidance they receive in school, and the involvement of their parents. Programs such as California Partnership Academies, CTE courses, Regional Occupational Centers and Programs (ROCPs),⁴ and counseling and guidance programs do not reach all students. While these information sources vary widely, students who have been underserved by postsecondary education are likely to receive the least information and guidance. Across all groups, many high school students know little about what it takes to succeed in education and careers beyond high school. Simply graduating from high school may lead students to believe that they have fulfilled the requirements for the next level of education. What they learn when they enroll in community college or one of California's universities, however, is that they must pass placement tests in key subject areas to enroll in credit-bearing courses, and too often they have difficulty with these assessments (Venezia, Kirst, & Antonio, 2003).

HOW ARE CALIFORNIA HIGH SCHOOLS DOING IN PREPARING STUDENTS?

Bill Gates' comments in February 2005 about American high schools generally are also valid for California:

America's high schools are obsolete...This isn't an accident or a flaw in the system; it is the system....

The heart of the economic argument for better high schools ... essentially says: "We'd better do something about these kids not getting an education, because it's hurting us." But there's also a moral argument for better high schools, and it says: "We'd better do something about these kids not getting an education, because it's hurting them" (Gates, 2005).

⁴ ROCPs, established in 1967, provided career preparation that includes both the technical skills and related preparation for meeting statewide academic standards, enabling students to be employed in skilled occupations and successfully continue into postsecondary education.

Several major issues emerged from the research conducted for this report, which the multiple pathways approach is intended to address:

High school graduation requirements. Currently, the requirements for high school graduation, as defined in the California *Education Code*, do not meet actual admission requirements of many postsecondary educational institutions. The California *Education Code* allows school districts to enact graduation requirements that exceed those required by the state, and many districts have done so. Passing the CAHSEE is also a requirement for high school graduation in California, and it is set at a tenth-grade level for English-language arts and at a level no more advanced than Algebra I for mathematics.⁵

Rigorous and relevant coursework. Students are not required to complete any coursework that connects academics to the world beyond school or otherwise prepares them for future careers. Many high school graduates embarking on the next stage of their lives find that they have not gained the skills they need to qualify for either postsecondary education or family-wage career paths.

High dropout rates. Examining California's effectiveness in preparing high school students for twenty-first century education and careers first involves a close look at dropout rates. The results are disheartening. Nearly one-fifth of all students fail to graduate from California public high schools (CDE, 2009, March), and close to one million Californians ages 18 to 24 do not have a high school diploma (Center for Student Success of the Research and Planning Group for California Community Colleges [RP Group], 2005). Further, a significant percentage of students drop out as early as ninth grade. The eighth to ninth grade transition year is considered to be a particularly vulnerable time for students (Berliner & Brodie, 2007). In addition, even those who do not drop out until eleventh or twelfth grade lose interest well before then. In one study, 71 percent of the students who dropped out said they had lost interest in school in the ninth and tenth grades. Nationally, much of the dropping out of school has shifted from the last two years of high school, typical of three decades ago, to between ninth and tenth grades today (Bridgeland, Dilulio, & Morison, 2006).

Poor preparation for higher education. It is important to identify what happens to high school students once they enroll in college or training programs — and these results are also disconcerting. A survey of placement test results in California indicates that 70 percent of community college students place in remedial-level mathematics, and 42 percent place in remedial-level English (RP Group, 2005). The most recent (fall 2006) results of California State University's (CSU) Early Assessment Program indicate that even students eligible for CSU needed remediation, as only about 63 percent of entering freshmen were proficient in mathematics, and 54 percent were proficient in English (CSU, Sacramento, n.d.). According to ACT results, the proportion of tested graduating seniors in California who are "college ready" across English, algebra, social science, and biology stands at about 29 percent for the class of 2009 (ACT, 2009).

Poor preparation for careers. Only one in five business executives thinks that schools are doing an excellent or good job in teaching reading or mathematics, and less than one in ten thinks that schools are doing an excellent or good job in teaching communication or problem-solving skills. About one

5 The mathematics section of the CAHSEE addresses state standards in grades six and seven and Algebra I.

in 20 believes that schools are doing an excellent or good job in teaching individual responsibility or good work ethics (Tulchin & Muehlenkamp, 2007). In a separate California survey, only three percent of employers said that high schools are preparing students “very well” for employment, while about half responded that high schools are preparing students “inadequately” (31 percent) or are “not preparing students at all” (16 percent) (de Cos, 2009). Two of the overall themes that surfaced from this survey include the following: (1) “Students do not have the necessary skills to perform the work,” and (2) “While the nature of jobs has changed, the educational system has not” (de Cos, Chan, & Salling, 2009). These data echo findings from a national study conducted by The Conference Board, Corporate Voices for Working Families, the Partnership for 21st Century Skills, and the Society for Human Resource Management (2006). High school graduates were found to be deficient in the basic knowledge and skills of writing in English, mathematics, and reading comprehension, and in the applied skills of written communications, critical thinking, problem solving, professionalism, and work ethic — all of which were considered “very important” by responding employers.

Persistent gaps in achievement. Finally, in studying how well high schools are performing, it is important to examine the achievement of student subgroups. For example, African American and Latino high school students are achieving at substantially lower levels than their white peers. In addition, African American and Latino students are also at higher risk of dropping out than their peers (de Cos, 2005). The achievement gap for Latino students is particularly worrisome for California’s future, because this population is growing faster than most other ethnic groups.

The findings in *Multiple Pathways to Student Success* indicate the industrial model high school of the past and present is not preparing students for the globally competitive world they must face in the future. In the current high school system, time is a constant, and learning is a variable. To improve student outcomes for every student, a new model of high school is envisioned. A transformed high school system would be based on the premise that learning is the constant and time becomes the variable. New systems, policies, and supports must be formulated to foster a personalized engaging approach to learning and individual mastery to progress through high school and beyond.

THE NEED FOR A STATEWIDE VISION AND THE POTENTIAL ROLE OF THE MULTIPLE PATHWAYS APPROACH

Although California has implemented a number of efforts to spur high school improvement, it must continue to develop an overall unifying vision of what a high school education means and what it provides to graduates — that is, the skills and knowledge that prepare students for ongoing education and family-wage careers. The *2008–2012 California State Plan for Career Technical Education* acknowledges that “there is still no widespread consensus among educators-at-large regarding the knowledge and skills — beyond minimum literacy and mathematics — that all students should have by the time they graduate from high school” (CDE & California Community Colleges Chancellor’s Office [CCCCO], 2008). In addition, the state CTE plan calls for the establishment of:

... a common understanding of essential skills among all stakeholders, including both CTE and non-CTE educators at the K–12, adult school, community college level, parents, industry, and community members. Essential skills include transferable skills that all individuals need

in order to navigate through life and multiple career changes, such as learning and thinking skills, life skills, innovation and creativity, entrepreneurship, and “21st century content,” in addition to other employability and career management skills (CDE & CCCCO, 2008).

The purpose of such an overall vision is not to prescribe new requirements within the existing system of high school education, but rather to shift the focus away from seat time and minimum expectations toward curricular programs and instructional practices that provide students with the foundational skills they need to succeed. The adoption of such a vision can have a galvanizing effect at the regional, district, and school levels, promoting cross-sector and cross-disciplinary commitment to change. At the state level, it can assist in aligning a wide range of policies and practices spanning K–12 and postsecondary education — so as to better support student progress within and across systems.

It is clear that continuing to support policies that created the current high school system and expecting different results is no longer feasible and will not prepare future generations of Californians to have economically self-sustaining careers, or to support the future growth of the state's economy. Many of those interviewed for this report believe California has the raw talent currently sitting in every high school classroom to propel the state to greatness. They also agreed that substantial changes are needed if we expect to have a system that is designed to move everyone to their highest educational and career potential.

IMPLEMENTING CHANGE

Clearly, statewide change cannot occur overnight. Further, high-quality implementation and the commitment of stakeholders are critical to the sustainability of systemic change (Fixsen, Naoom, Blasé, & Wallace, 2007; Adams, 2003; Christensen, Horn, & Johnson, 2008; Grubb & Tredway, forthcoming). Implementation of the multiple pathways approach will require change in policies and practice to support the creation of pathways and build the necessary infrastructure, including linkages to middle schools, postsecondary programs, regional partners, teacher and administrator preparation programs, and accountability systems aligned to new goals. Equally important, however, if the multiple pathways approach is to take hold and grow, the individual pathway components — core academics, career technical education, work-based learning, and student support services — must also be strong and adaptable. Ensuring strong pathway components in turn requires ongoing development of their respective systems, such as teacher preparation in the academic disciplines, cross-segmental articulation in CTE, and counselor training programs. While it is not within the purview of this report to address all the fundamental improvements needed in each of these areas, research on change (Fullan, 2007; Wheatley & Frieze, 2006; Fixsen et al., 2007; Kirst & Meister, 1985) suggests a number of principles that would inform the overall change process and the relationship of components to the larger structures as this process unfolds. These principles include the following:

- **Start with “bottom up” initiatives.** Change occurs most effectively through “emergent” local action, connected through networks, nourished through the building of communities of practice, and illuminated so the efforts can spread (Wheatley & Frieze, 2006). Contributors to *Multiple Pathways to Student Success* have echoed this view. In one district, administrators and staff cautioned the state to “start small, so people do not feel overwhelmed, so that they see

immediate results.”⁶ This view was further elaborated by the Alliance for a Better Community in *The Bottom-Up Approach: How Youth and Parent Organizing Strengthens Multiple Pathways*. The organization traces a history of parent and student activism that has led to school transformations in educational equity and quality. The authors note that “to build and maintain comprehensive and systemic reform, educational consumers – students and parents – must be engaged as partners in any school design efforts. As such, Multiple Pathway reform requires the involvement and engagement of students and parents as partners in school change and improvements.” By funding high-fidelity efforts through the Linked Learning Alliance, The James Irvine Foundation has taken this kind of “bottom up” approach.

- **Build support.** Fullan (2007) asserts that the “key to large-scale reform is whether the strategy can get a large number of leaders (change agents) with and across the three levels – school, district, and state – to jointly own the enterprise.” Fullan adds that “the main measure of an overall strategy is whether it is motivational – mobilizing a large number of people to spend their energy and otherwise invest in what will be required to reap and sustain major improvements.” Fullan’s recommended overall approach includes as its first strategy establishing a guiding coalition to ensure constant communication among all stakeholders. Similarly, Kirst and Meister (1985) posit “powerful constituencies” as central to the sustainability of change. Change will only last to the extent that parents, educators, political leaders, and other leaders buy in and support the new direction. The Linked Learning Alliance has served this role in building support to date. A statewide advisory body could build on existing efforts and guide the work to the next level.⁷
- **Connect local efforts and build capacity.** “Bottom up” local action, even coupled with high-level support, is not sufficient, however. Wheatley and Friez (2006) warn, “If these changes remain disconnected, nothing happens beyond each locale” and Fixsen et al. (2007) stress the importance of high-quality implementation. The state and various “third party” support organizations can play a critical role in connecting local initiatives and building communities of practice, as The James Irvine Foundation and ConnectEd have done through their district initiative, and as professional organizations do in CTE and other disciplines. In addition, the state can play a critical role, in partnership with other support organizations, to build capacity, another key strategy in Fullan’s approach. Capacity building includes providing ongoing professional development, identifying and sharing effective practices, and developing resource materials, among other activities.
- **Provide incentives for change.** Two of the other components of Fullan’s recommended overall strategy for large-scale reform include “growing the financial investment” and “evolving positive pressure.” In concert with these strategic components, the state needs to ensure that adequate resources are invested and that these are made in partnership with the educational community. “If done well,” Fullan asserts, “these investments are lucrative to society. They produce direct economic development and benefits; they save money by reducing the bill in education with respect to later remedial costs for failing students, and by affecting costs

6 Information provided by respondent during the Nevada City Unified School District interview on June 28, 2009.

7 For more information, see Chapter 13.

related to crime, health, and other aspects of well being" (Fullan, 2007). Belfield and Levin (2007) have corroborated this. In addition, the policy structure governing the operation of secondary schools must provide clear goals and powerful incentives that stimulate local efforts to use innovative approaches, such as the multiple pathways approach, to meet statewide educational objectives. As a result, it would be appropriate for the CDE to continue to be expected to communicate the state's school-improvement goals to local educational agencies and to provide the agencies with the necessary technical assistance and other services to complement and support emergent local initiatives.

- **Set aspirational targets, but keep learning.** Another of Fullan's strategies is "negotiating aspirational targets," but he warns that "a basic premise of the overall strategy is to be evidence-based, to learn as we go" (Fullan, 2007). Indeed, change can only be sustained if it is monitored through "easily-accessible evidence" of progress (Kirst & Meister, 1985) and if new structures themselves remain adaptable over time. Century (2009) in *EdWeek* writes, "The key to sustaining change must come from our ability to adapt our best knowledge to ever-changing contexts and conditions and to work together as a field to systematically organize, process, and construct the learning that comes from those adaptations." Consistent with the thinking of Wheatley and Frieze (2006), this statement suggests the need for both ongoing learning and a willingness continuously to adapt to new learning. Christensen et al. (2008) in *Disrupting Class* remind us that "... the schooling industry can create a robust R&D laboratory to discover new models of schooling, create circumstance-contingent theories about what works for different children, and ultimately improve learning for all children."

Consistent with these principles, the overall assumption of *Multiple Pathways to Student Success* is that the implementation of the multiple pathways approach in California will proceed in a measured way, with careful evaluation, sharing of strategies that work, and continuous learning. All the while, strengthening and expanding the core components of pathways must continue apace. This ongoing attention to the core components is particularly critical for career technical education, which is experiencing a renewal of interest, given critical workforce shortages in addition to high dropout rates. California is on a trajectory to a world-class CTE system with the adoption of the CTE model curriculum standards and framework in 2006 and 2007, respectively; the passage of the Governor's CTE Pathways Initiative (Senate Bills [SB] 70 and 1133) in 2005; the development of the new *2008–2012 California State Plan for Career Technical Education*, and the California County Superintendents Educational Services Association development of a subsequent statewide "course of study" to facilitate implementation of high-quality CTE programs. At the same time, overall high school innovation, as first articulated in *Second to None* and then in *Aiming High*, is being further stimulated through federal incentives. Any expansion of the multiple pathways approach is intended to harness, leverage, and expand these efforts, for the benefit of all California's students.

STRUCTURE OF THE REPORT

Multiple Pathways to Student Success — in examining the means and conditions needed for expanding multiple pathways statewide — explores the ways in which this approach might fulfill the state's overall need for a more cohesive vision of high school education. As Chapter 2 defines in

greater detail, the multiple pathways approach is not a “one-size-fits-all” model for how students learn or how schools and districts structure their programs. Rather, there are many variations. The chapter goes on to examine existing evidence about the effectiveness of the multiple pathways approach to date.

Beginning with Chapter 3, the report examines in detail the core areas of implementation (including curriculum and instruction, applied and work-based learning, and in-school support); core linkages (including alignment with middle grades and with postsecondary education, and linkages with partners and regional coalitions); and internal and external levers for change (including professional development and accountability). Final chapters focus on state leadership and examine cost and budgetary implications of implementing the multiple pathways approach to high school transformation. The report concludes with recommendations, an action agenda that provides a bold vision for high school reform as it builds upon the multiple pathways approach, and a list of stakeholders who were consulted during the preparation of this report. The *Executive Summary* and full report are available at <http://www.cde.ca.gov>.

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Chapter 2. The Multiple Pathways Approach

The expansion of the multiple pathways approach has the potential to make high school a more cohesive experience for students and improve a wide range of student outcomes. Pathways are designed to expand students' options and opportunities; pathways can make high school an exciting learning environment where students are interested, involved, and challenged and understand how they might use what they are learning in the outside world.

In the multiple pathways approach, districts make several different pathways available to students throughout their jurisdictions, with each pathway aligned to one or more industry sectors. The aim is that students have access to at least one pathway matching their interests and that they select their high school or course of study with this interest in mind. Once in a pathway, all students have access to rigorous academics, rigorous career technical courses, work-based learning, and support services, maximizing learning while in high school and options after high school.

The term "pathway" is a common term in education. Within the multiple pathways context, a pathway is defined as:

A multiyear, comprehensive high school program of integrated academic and technical study that is organized around a broad theme, interest area, or industry sector.⁸

Each school district has broad latitude to define its theme-based pathways within or across several industry sectors.⁹ In most cases, pathway themes are associated with industries that are prevalent in that region.

Given the earning limitations of students without some education or training beyond high school, it is important that pathways be designed to ensure that all pathway students have curriculum choices that will prepare them with the knowledge and skills necessary for:

- Successful career entry immediately after high school
- *and* –
- Successful participation and completion of education after high school, including, for example, two- and four-year colleges and universities, apprenticeship programs, formal employment training, and other postsecondary options

⁸ This definition is from AB 2648, which further identifies the core components of a pathway and the industry sectors as those including, but not limited to, "the industry sectors identified in the model standards adopted by the State Board pursuant to Section 51226."

⁹ The term "pathway" in this context is not synonymous with the 58 CTE pathways identified as specific career areas within each of the 15 industry sectors identified in California *Education Code* Section 51226; however, CTE course sequences are integral components of pathways in the multiple pathways approach. The new term for the multiple pathways initiative – "linked learning" – helps alleviate confusion with regard to initiatives that have similar names.

CORE COMPONENTS OF EACH PATHWAY

To reach the twin aims identified here, each pathway requires, at a minimum, the following four core components:

1. **An integrated core curriculum** that:
 - Provides access to a challenging academic component that prepares students for success in California's colleges and universities, including apprenticeships and other postsecondary programs
 - Is delivered through problem- and project-based learning and other engaging instructional strategies
 - Intentionally brings real-world context and relevance to instruction, using methodologies that emphasize broad themes, interest areas, and career technical education
2. **An integrated career technical core curriculum**, including a sequence of at least four, year-long related courses that:
 - Contains CTE standards-based courses
 - Provides students with career management skills
 - Is aligned with and underscores core academic principles and standards
3. **A series of work-based-learning opportunities** that begin with mentoring and job shadowing and evolve into intensive internships, school-based enterprises, or electronically assisted mentorships.¹⁰
4. **Student support services**, including supplemental instruction in reading and mathematics, to help students master the advanced academic and career technical content necessary for success in postsecondary education and careers, counseling, and other services.¹¹

ESSENTIAL CHARACTERISTICS OF HIGH-QUALITY PROGRAMS

The following characteristics appear to be essential for the development of effective programs using the multiple pathways approach.¹²

Equity and access. Pathways are selected and designed broadly to address the needs of students with diverse abilities and interests. The pathways are accessible to all interested students and recruit students of both genders and from diverse ethnic backgrounds. The pathways explicitly facilitate access to and success in multiple postsecondary options for all participating students, for example,

¹⁰ For more information, see Chapter 4.

¹¹ For more information, see Chapter 5.

¹² Many of these characteristics are drawn from literature regarding effective educational programs generally, since the literature regarding pathways using the multiple pathways approach is relatively new and not yet conclusive in some areas.

by providing rigorous courses of instruction in all subject areas (Bangser, 2008; Dolejs, 2006; Hoachlander & Dayton, 2007; Friedlaender & Darling-Hammond, 2007; Kemple, 2008; Lee & Smith, 1995; National Research Council and the Institute of Medicine, 2004).

Informed student choice. Students have choice with regard to their selection of a pathway, their selection of academic and career technical courses within the pathway, and the postsecondary options they seek to pursue. Students and their families receive timely information, guidance, and exploration opportunities that enable them to make appropriate choices (Bangser, 2008; Benard, 2004).

Student engagement. Instruction and related activities inspire student interest and desire to learn and facilitate that learning through active participation. Students are engaged from the moment they arrive on the high school campus to mitigate any dropping out (Kemple, 2008; Kemple, Herlihy, & Smith, 2005; National Association of Secondary School Principals and the Education Alliance, 2004; National Research Council and the Institute of Medicine, 2004; Page et al., 2002; Walcott, Owens-West, & Makkonen, 2005).

Relevance for students. Students understand the relevance of their learning experiences beyond school – how academic and career technical knowledge are applied in industry. They also understand how their learning links to their own future career aspirations and the additional education that may be required to realize these aspirations (Bangser, 2008; Friedlaender & Darling-Hammond, 2007; Kemple, 2008; Kemple & Scott-Clayton, 2004; Kemple, Herlihy, & Smith, 2005; Walcott, Owens-West, & Makkonen, 2005).

Personalization and support. Pathways provide students with smaller school environments; the students are known by their teachers, peers, and other school staff; and they develop a sense of community. Students' academic, social, psychological, or logistical needs are readily discerned and addressed (Hoachlander & Dayton, 2007; Friedlaender & Darling-Hammond, 2007; Kemple, 2008; Kemple, Herlihy, & Smith, 2005; National Association of Secondary School Principals, 2004; National High School Center, 2008; National Research Council and the Institute of Medicine, 2004; Page et al., 2002; Walcott, Owens-West, & Makkonen, 2005).

Depth of learning. Students are provided opportunities to learn in depth in both academic and career technical skill areas, as reflected through performance-based assessments and other demonstrations of acquired knowledge and skill, such as industry certifications, when appropriate. Career technical and academic instruction are each deep enough to enable the application of career technical knowledge and skills in the workplace and lay a foundation of theoretical understanding needed for further learning and career development (de Cos & Chan, 2009; Friedlaender & Darling-Hammond, 2007; Grubb & Oakes, 2007; Rose, 2007).

Breadth and transferability of learning. Pathways expose students to options, as well as prepare them for future learning and careers in a given industry area. Pathway curricula in the multiple pathways approach provide students with both broad exposure to the alternative careers in a particular industry sector and a set of basic transferable skills that would be useful to students, regardless of the career they eventually pursue, across industry sectors (de Cos & Chan, 2009; Grubb & Oakes, 2007).

Developmental appropriateness. Students have opportunities to learn in ways that are appropriate to their developmental needs. These opportunities include increasing levels of responsibility and autonomy as students mature; and providing access to caring adults in schools, workplaces, and communities who can join with parents in guiding students into adulthood (Bangser, 2008; Benard, 2004; National Research Council and the Institute of Medicine, 2004).

High-quality curricula. Curricula in all subjects are standards-based and, in both integrated academics and integrated career technical core courses, are also validated by industry (Kemple, Herlihy, & Smith, 2005; National High School Center, 2008; Walcott, Owens-West, & Makkonen, 2005).

High-quality teaching. Both academic instruction and career technical instruction are provided by teachers with expertise in their respective fields. Teaching encompasses a broad variety of strategies, including coaching and facilitating project-based and work-based learning, in addition to instruction. Teachers identify and provide access to learning opportunities outside the classroom to expand and strengthen classroom learning (Dolejs, 2006; Kemple, Herlihy, & Smith, 2005; National Association of Secondary School Principals and the Education Alliance, 2004; National High School Center, 2008; Rose, 2007).

Linkages to middle grades and to opportunities beyond high school. Pathways are linked to experiences before high school, so that students come to high school prepared to succeed in pathway programs. Pathways are also linked to a variety of postsecondary options, so that students can envision and gain access to appropriate opportunities after high school graduation. In addition, beyond curricular and programmatic linkages, pathways provide direct support to help students transition successfully from one level to the next (Bangser, 2008; Herlihy, 2007; Kemple, 2008; National High School Center, 2008).

Industry and community partnerships. Programs have direct input from industry and communities to inform the design and delivery of curricula and students' learning experiences (Kemple, Herlihy, & Smith, 2005; Kemple, 2008; de Cos & Chan, 2009; National Association of Secondary School Principals and the Education Alliance, 2004; Darche, Nayar, & Bracco, 2009).

Adults as learners. The adults who participate in pathways create, along with their students, a shared learning community. Teachers, administrators, and other staff engage in ongoing self-reflection and professional development, thus modeling "lifelong learning" (Bangser, 2008; Dolejs, 2006; Friedlander & Darling-Hammond, 2007; Page et al., 2002; Quint, Bloom, Black, & Stephens, 2005; National Association of Secondary School Principals and the Education Alliance, 2004; National High School Center, 2008; Walcott, Owens-West, & Makkonen, 2005).

WIDE LATITUDE IN DESIGN OPTIONS

The four core components described earlier, together with the essential characteristics of high-quality programs, allow for a wide variety of pathway designs. As a result, districts and schools have substantial latitude in developing pathways in the multiple pathways approach. For example, there is variability across the following design options.

School structures. Students may have access to pathways through comprehensive high schools, ROCPs, charter schools, or independent study programs. Districts assist schools to identify specific pathways to be implemented while coordinating across schools to increase choice across the districts. Small schools or semi-autonomous schools that share facilities on a large campus might each offer a single pathway, thus providing multiple options across the campus. In some cases, whole schools can focus on single themes; these single-pathway schools offer one option among many within a given district. Existing programs can also serve as organizing structures for pathways. For example, most magnet programs and Specialized Secondary Programs¹³ are organized thematically, and many adhere to the quality characteristics elaborated earlier. These programs can provide the basis for a multiple pathways approach, if they include the four core pathway components. In addition, pathways can be offered via individualized programs where each student pursues his or her personal goals, as long as all four components are available to the students.

Local District 4, Los Angeles Unified School District

Unique among the eight local districts that comprise Los Angeles Unified School District, Local District 4 is now in the third year of implementing the Belmont Zone of Choice – a geographic area comprised of four high school campuses that include 17 small-themed schools from which eighth grade students may choose to enroll. Existing small schools include pathways in Media and Entertainment, Finance and Business, and Health, among others. By 2016, Local District 4 will have established an equitable choice process that will enable middle school students to choose from pathways in at least six to eight industry sectors. Within each industry sector, there will be at least two established pathway programs, and at least one program in each industry sector is expected to be a fully developed and certified as a pathway using the multiple pathways approach.

Themes. Themes serve two primary purposes. The first is to organize learning in ways that motivate student engagement and facilitate comprehension of academic and career technical content knowledge. The second is to provide a vehicle for students to explore their interests and master skills that they can later apply in further education and careers – sometimes in jobs immediately after high school. Pathways in the multiple pathways approach have varying themes. Most pathways are based on career themes that fall within one or across several of the following 15 industry sectors:

1. Agriculture and Natural Resources
2. Arts, Media, and Entertainment
3. Building Trades and Construction
4. Education, Child Development, and Family Services

¹³ Specialized Secondary Programs provide students with advanced learning opportunities in academic disciplines and often include a career focus to develop students' talents, skills, and interests as they prepare for work and higher education.

5. Energy and Utilities
6. Engineering and Design
7. Fashion and Interior Design
8. Finance and Business
9. Health Science and Medical Technology
10. Hospitality, Tourism, and Recreation
11. Information Technology
12. Manufacturing and Product Development
13. Marketing, Sales, and Service
14. Public Services
15. Transportation

Districts and schools typically select pathway themes based on industries in their areas, and the pathways, in turn, can be important in developing a qualified local workforce. However, while many themes of existing and planned pathways fit neatly into one of these 15 industry sectors, some themes may cross multiple industry sectors. For example, an international trade academy may include curriculum related to several industry sectors (such as Agriculture and Natural Resources, Manufacturing and Product Development, and Finance and Business) while also highlighting cross-cultural issues and foreign languages. Another example might be a visual and performance arts academy in which all students are expected to complete courses in stage design and construction that involve concepts drawn from the Building Trades and Construction industry sector. In some of these cases, the technical core courses may include CTE courses in more than one industry sector.

In some high schools, career themes are individualized. In these programs, such as the Met schools and High Tech High, all students participate in all four pathway components, but each student selects his or her own career focus.

Number of years in the pathway. Pathways ideally span all four years of the traditional ninth through twelfth grade high school to ensure early engagement of students and to help prevent ninth graders from dropping out of school. Variation is possible, however, if schools can provide all four components over a different time period and, at the same time, create other means to engage students when they enter ninth grade.

Number of pathways available in a school. There is no optimum number of pathways at a school. Districts and schools should consider the number and sequence of courses the school can realistically provide to deliver high-quality academic courses, career technical courses, work-based-learning opportunities, and support components. Pertinent issues include the number of students; the number of available teachers, counselors, and other staff; access to facilities; the design of the master schedule; and the level of industry, teacher, and community support.

Number of pathways available in a district. The multiple pathways approach does not prescribe a specific number of pathways per district. The intent is that, eventually, all students have access to at least one pathway of interest, whether at his or her school or within an appropriate travel distance. In rural areas particularly, some courses or experiences might need to be accessed virtually, through distance learning, if necessary.

High Tech High, San Diego

Launched in 2000 as a charter school by a coalition of San Diego business leaders and educators, High Tech High (HTH) features all four key components of a multiple pathways approach.

Its three design principles – common intellectual mission, adult-world connection, and personalization – align well with multiple pathways approach, but its themes are individualized. High Tech High makes no distinction between “college prep” and “technical” education. Enrollment is non-selective, and there is no tracking. The curriculum is rigorous, providing the foundation for entry and success at the University of California and elsewhere. However, assessment is performance-based: all students develop projects, solve problems, and present findings to a community panel. Teacher teams have ample planning time to devise integrated projects with a common assessment rubric.

HTH students experience some of their best learning outside the school walls through work-based-learning opportunities. All students are required to complete an internship in their junior year and a substantial senior project. In addition, students receive personalized support; each student has a staff advisor who monitors the student’s personal and academic development and serves as the point of contact for the family. Finally, all students prepare a personal digital portfolio of their accomplishments.

Degree of integration among components in each program. While all pathways must include all four core components, pathways will vary in how tightly the academic and career technical curricula are integrated. When career technical courses have been approved as meeting university admission requirements, a single career technical core class can be considered inherently integrated – that is, it encompasses both technical and academic components, enabling students to meet two goals simultaneously. However, some CTE courses may not meet university admission requirements. In addition, a stand-alone course does not impart to students the full benefit of an integrated program for students – seeing the connections among their courses, which facilitates understanding and motivates learning in all disciplines.

Therefore, coordination across disciplines among teachers is usually necessary to achieve integration. In some cases, academic and career technical teachers will align their courses to a common theme, whereas in other cases, academic and career technical skills are team taught in a common class.¹⁴ Ideally, across all models, teachers use interdisciplinary projects and work-based learning to enhance integration. For example, students in a building and engineering pathway might learn about geometry and algebra while actually designing and building a structure; and students in an arts, media, and entertainment pathway might learn persuasive writing skills while developing business plans, or creative writing skills while drafting scripts.

¹⁴ For more information, see Chapter 3.

Health Professions High School, Sacramento

Health Professions High School (HPHS) is an "early college" school that draws from the core components of a pathways approach. The school's mission is to offer students an outstanding education, rich with relevant academic, real-world, and leadership experiences – with a healthcare theme. HPHS opened in 2005. In 2008–09, with a new freshman class, the school reached its capacity of 500 ninth to twelfth grade students and had its first graduating class.

HPHS provides an intensive medical and health professional preparation program within an environment that provides real-world and postsecondary experiences. The HPHS curriculum integrates healthcare themes throughout all classes; the students present their knowledge twice per year at large events. Students study a rigorous, standards-based education that exceeds the university of California (UC) a–g requirements list.¹⁵ By providing a course sequence along an "early college" model, HPHS encourages students to begin college-level coursework while in high school. In addition to rigorous academics, students participate in Health Occupation Students of America leadership training and activities, as well as extensive work-based learning with healthcare partners.

Types of work-based learning. Work-based learning is a core component in the multiple pathways approach, but the types of work-based learning offered can vary. Work-based learning may occur on the school campus; through school-based enterprises; in the community through service learning or social enterprises; or through technological means, as in "virtual apprenticeships" or electronically supported mentorships. The key is providing students access to opportunities that are judged by professional standards, through direct employer or community input.¹⁶

Classroom staffing. Staffing of academic and career technical courses depends on the pathway and includes teachers with varied backgrounds. Teachers in core academic courses provide a rigorous academic program and are credentialed to teach assigned courses. Some exposure to the industry in which the pathway focuses, as well as the teachers' close collaboration with their CTE colleagues, enhances their ability to bring relevance to the classroom.

Career technical teachers, with their required industry experience, deliver rigorous career-specific skills and exposure to the industry sector and are credentialed to do so. In addition, their understanding of the core academic content inherent in their courses enables them to help students make the link between academic and career technical content. In some cases, the best teachers for pathway positions will have both university-level academic training and industry experience, and

15 The intent of the a–g subject requirements is to ensure that students can participate fully in the first-year program at the University of California in a wide variety of fields of study. The requirements are written deliberately for the benefit of all students expecting to enter the university, and not for preparation for specific majors. Fulfillment of the a–g pattern also demonstrates that students have attained essential critical thinking and study skills. Retrieved from <http://www.ucop.edu/a-gGuide/ag/a-g>

16 For more information, see Chapter 4.

Manufacturing Production Technology Academy, Laguna Creek High School, Elk Grove

The Manufacturing Production Technology Academy at Laguna Creek High School is an example of a California Partnership Academy that exhibits all four of the core components of a developed pathway within a school. The academy is staffed with both academic and CTE teachers and receives strong administrator support.

The academy, which is organized around manufacturing and engineering, has a teaching team that includes English, math, science, social studies, and CTE teachers. Two instructors have dual credentials, allowing them to teach both academic and CTE courses. Ninth to twelfth grade students enroll in the core academic courses: four years of English, three years of science (including physics), and three years of mathematics. In addition, students have a rigorous sequence of core CTE courses to prepare them for careers or postsecondary work in manufacturing or engineering. The academy has one integrated academic and career technical project each semester that involves industry and postsecondary partners as well as the teaching staff. One partner is the Sacramento Regional High Tech Consortium. In addition, students who complete the four-year course of study can earn nine credits of mechanical engineering credit from California State University, Sacramento.

The lead teacher for this academy sought out both academic and CTE teachers who were interested in working together as a team. The school administration supports the program by ensuring that students are placed in the right courses and accommodated when they need extra support. A support class is provided for ninth and tenth graders with a class size that is lower than the school average. The district also provides an administrator who completes required paperwork and ensures adequate funding and equipment to support the academy.

they will hold credentials that enable them to teach both academic and career technical classes. In other cases, academic and career technical teachers will “team-teach.” In yet another scenario, academic and career technical teachers will work separately – either integrating their curricula or simply aligning their coursework as described earlier.

Staffing for support systems and work-based learning. Counseling, career guidance, and work-based-learning staff may be centralized or assigned directly to the pathway, depending on the pathway's size, the school's structure, available resources, and other factors. In some cases, teachers with adequate professional development can take on these functions. In other cases, community or industry resources may expand staff capacity to provide career guidance, career exploration, and work-based-learning opportunities. Adequacy of personalization, and sufficient breadth and depth of staff knowledge to facilitate student choice and goal setting are critical factors in designing a pathway's counseling and guidance infrastructure. Similarly, work-based learning may be brokered by classroom teachers with industry contacts, or by other staff who can focus on this function. Knowledge of, and credibility with, industry are critical to this effort.

WHAT DO WE KNOW ABOUT THE EFFECTIVENESS OF THE MULTIPLE PATHWAYS APPROACH?

Based on a review of existing research, the multiple pathways approach appears to offer promise in helping students prepare for a wide range of postsecondary and career opportunities. According to studies that have been completed in California and nationwide, pathways using this approach have shown positive effects on student achievement, educational attainment, and employment and earnings outcomes. However, the literature regarding the multiple pathways approach is relatively new and therefore is not yet conclusive in some areas. As a result, *Multiple Pathways to Student Success* draws upon research studies of programs that incorporate some, but not necessarily all, components of pathways using the multiple pathways approach. For more comprehensive reviews of the research literature, see Clark et al. (2007), and Stern & Stearns (2006).

California Studies

Several studies have focused on the state's California Partnership Academies, ROCPs, and the preparation that California students receive to explore career options.

California High School Exit Examination graduation rates and preparation for postsecondary education. Native American, Hispanic/Latino, Pacific Islander, and African American students in California Partnership Academies with rigorous academic and career technical courses, support for students, and work experience exhibited higher passing rates on the CAHSEE than non-CPA students of the same ethnic backgrounds. These CPAs also had greater proportions of seniors graduating compared to the state as a whole and higher rates of a-g course completion among their graduates (Hoachlander & Dayton, 2007; Stern, Raby, & Dayton, 1992).

High school completion, grade point averages, and standardized test scores. California's ROCPs have demonstrated in three separate studies that previously struggling students from traditional school environments complete high school and achieve higher grade-point averages and standardized scores when taught in career pathways that integrate CTE and academics and that utilize related work-based-learning strategies (Adler, 2007; Mitchell, 2003, 2005, 2007).

Importance of school partnerships for career preparation. A study of the implementation of career exploration programs in California's public middle and high schools identified partnerships with community colleges, local businesses, or industry groups as important for career preparation. Best practices included career days, field trips, advisories, week-long career exploration research projects, partnerships with community colleges, and summer internships with local business partners and community organizations. While many CTE programs have developed these best practices, major barriers to these partnerships include the lack of staff and limitations on using after-school time due to local collective bargaining agreements (de Cos & Chan, 2009).

Employment and earnings gains. A longitudinal study of ROCP students conducted by researchers at UC Riverside (Adler, 2007; Mitchell, 2003, 2005, 2007) revealed that ROCP students report employment in jobs that pay significantly higher wages than those held by a comparison group of their peers. With the average salary for all groups running in the \$7 to \$13 per hour range, the

ROCP graduates reported earning about \$1.57 per hour more. This difference is despite the fact that ROCP students were initially lower achieving and from lower socio-economic backgrounds than the comparison group. This gain pertained to all gender and ethnic subgroups within the study; ROCP females reported earning more than comparison females, and ROCP students of all ethnic backgrounds reported making more than comparison-group white males.

Perceived importance of integrated and relevant coursework for postsecondary as well as career preparation. A study of CPAs found that integrated and relevant coursework, a support system of caring adults and community, accountable adult leadership, and increased resources and fiscal support were ranked highest as critical components that prepared students academically for four-year colleges. The findings were based on interviews with 55 CPA principals, coordinators, and teachers at 28 academically high-achieving CPAs.

National Studies

National studies have been conducted on a variety of models that employ the multiple pathways approach or components of the approach. In general, a number of rigorous studies find that some aspects of pathway implementation, such as integrating academic and career curricula and small learning communities, have a positive impact on labor market outcomes and student achievement.

Employment and earnings gains. As of 2004, about 4,800 high schools nationwide have at least one career academy described as a multi-year program in which the curriculum integrates academic and CTE courses, organized around one or more broad career themes (U.S. Department of Education, 2004). More recent estimates place the number of career academies closer to 6,000. Evaluation reports by MDRC of nine career academies found that the programs generated and sustained significant employment and earning gains, mostly for Hispanic or African American students. These impacts were concentrated among young men who had high likelihoods of dropping out (Kemple, 2008).

Fidelity of implementation. The MDRC reports on career academies also identified the importance of implementing the full career academy model to make gains in academic as well as career attainment. The researchers noted that career academies demonstrate the feasibility of accomplishing the goals of school-to-career and career technical education without compromising academic goals. With respect to academic achievement, short-term gains were exhibited in engagement and participation but not in long-term educational attainment (Kemple, 2008; Kemple & Scott-Clayton, 2004). The researchers noted that because career academy courses tended to not truly integrate academic and career-related curricula, it is not surprising that no differential effects were observed in students' standardized test scores.

Improved high school graduation rates. Whole school reform models that incorporate some elements of career academies have been found to be associated with improved high school graduation rates. Specifically, the Talent Development High School model that incorporates elements of the multiple pathways approach is associated with greater promotion rates; increases the number of high school graduates by eight per 100 students; and has a high benefit to cost ratio (Levin, Belfield, Muennig, & Rouse, 2007; Kemple, Herlihy, & Smith, 2005). Key components of the model include small learning

communities, college preparatory and career-oriented curricula, continuous teacher professional development, and community and family partnerships, as well as learning supports.

Improved academic achievement when academic instruction combines with CTE. Stone et al. (2005) employed an experimental design to test if mathematics achievement could be improved without compromising technical skill development. Using random assignment, researchers partnered mathematics teachers with CTE teachers or kept mathematics teachers alone. Students in classrooms with partnered mathematics and CTE teachers exhibited significantly higher test scores in TerraNova and Accuplacer tests.

Positive effects of small learning environments. A large body of literature addresses the positive effects of small schools and small learning communities (Lee & Smith, 1995; Cotton, 2001) – the typical structures of pathways in the multiple pathways approach. The research shows that schools with smaller student populations have lower dropout rates, higher attendance, and higher graduation rates. Evaluations of schools organized into small learning communities show that they foster greater personalization and belonging as measured by students feeling more satisfied and lower incidences of vandalism. Small learning communities also benefit teachers through professional development specifically focused on meeting their needs and high levels of collaboration among teachers (Cotton, 2001).

FUTURE RESEARCH

The research reviewed suggests that pathways using the multiple pathways approach can make learning more engaging for students and offer promise for preparing students more effectively for a wide range of postsecondary and career opportunities. However, broader implementation of the multiple pathways approach gives rise to opportunities for refining program and model designs and for addressing complex implementation challenges. These opportunities should also be met with complementary research efforts to better understand student outcomes, capture lessons, and inform future directions.

In particular, California could benefit from knowing more about students' long-term outcomes, including persistence in postsecondary education and labor market outcomes. In addition, data are needed to better understand the relationship between student outcomes and various aspects of implementation. This information may include:

- Specific design components and program variations within models using the multiple pathways approach, such as pathway grade span, pathway size, and school structure
- The extent of integration of academic and CTE courses in various fields
- The nature and quality of work-based learning
- The extent and quality of support services for students in pathways

Ongoing research and evaluation are also needed to better understand how district and school implementation strategies and structural and supportive factors contribute to effective implementation of the multiple pathways approach. Such factors may include the pacing and

participation of stakeholders in the phase-in of pathways; distribution of pathways across a district; the roles of industry, postsecondary partners, parents, and community members in start-up and implementation; the role of preservice preparation and professional development in teachers' ability to integrate academic and CTE education; and the role of district and school leadership in successful implementation. Similarly, qualitative research examining the perceptions of students, parents, teachers, administrators, and industry and community partners would help in designing and improving programs.

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Chapter 3. Curriculum and Instruction

"I love my Video Production class. I am thinking this will be my career. We are learning math and how it relates to animation. In English class, we are learning how to write a press release."

— Student, Porterville High School

"Since this is a project-based school, what we're learning in chemistry can be carried on to graphic design or English because it's all connected to the same project...."

— Student, Digital Media Academy

INTRODUCTION

To prepare for a full set of postsecondary options, students in pathways implementing the multiple pathways approach participate in both academic and career technical courses, work-based learning, and support services. Like students in traditional programs, students in pathways master challenging standards-based content in both academics and CTE and benefit from a wide range of teaching strategies, from direct instruction to cross-disciplinary curricula and projects. This chapter focuses primarily on what sets curriculum and instruction in the multiple pathways approach apart from traditional strategies, which is the emphasis on integration of curricula across disciplines, particularly across academics and CTE.

Integration of educational curriculum can be defined as bringing together various fields of content knowledge and skills around a common theme to reveal connections and facilitate learning. Pathways are intentionally designed to offer integrated learning experiences — connecting academic learning with technical skills and real-world applications in the context of students' career interests — to make learning relevant, engaging, and meaningful, thereby motivating student achievement. Integration is not intended to take away from the richness or rigor of any of the individual disciplines; rather the disciplines complement one another to enhance student learning.

EFFECTIVE PRACTICE

Integrated teaching and learning strategies seek to connect problem solving and inquiry across subject areas and to provide applications to academic subjects. This strategy responds to the troubling question students often ask: "Why do I need to learn this?" In addition, the integration of teaching across subjects can sometimes help students find personal areas of interest. For example, by studying science in relation to a health-related problem, students may find a new interest in one of the health professions. With this new-found interest and vision of a future career possibility, the student may then become more engaged in school and eager to pursue postsecondary options.

In addition, an integrated curriculum builds on the way the brain works by connecting new learning to past experiences and knowledge. In many traditional educational approaches, students are expected to make connections between subjects on their own. Pathways seek to engage students in the complex functions of understanding, as well as remembering. Because understanding and

remembering are based on past knowledge, using integrated curriculum within and across disciplines can help students “go deeper” to understand connections and multiple perspectives.

Further, research in anthropology, neuroscience, linguistics, and psychology has shown how important the hand and senses are to understanding and cognitive development. Neurologist Frank R. Wilson (1998) argues that “any theory of human intelligence which ignores the interdependence of hand and brain function, the historic origins of that relationship, or the impact of that history on developmental dynamics in modern humans, is grossly misleading and sterile.” He asserts, “The clear message from biology to educators is this: The most effective techniques for cultivating intelligence aim at uniting (not divorcing) mind and body.” This message suggests that the kind of CTE/academic integration called for by the multiple pathways approach — promoting hands-on strategies, project-based learning, and technical skill mastery in every pathway — has implications not only for making learning interesting, but for making it effective and lasting.

Integration occurs in both academic and CTE classes; by design, pathways in the multiple pathways approach provide both components to all pathway students. Integration occurs naturally in academic classes when a teacher frames a theoretical lesson around a real-world application. For example, a science teacher might include information about the swine flu virus to support a biology lesson on the immune system and mutation of viruses. The mathematics teacher may also have students graph statistics on the spread of disease.

Likewise, integration occurs naturally in a CTE class when a video production teacher has students write scripts and storyboards using short stories from their English classes. It also occurs when an agriculture teacher asks students to discuss or investigate how chemicals found in insecticides impact climate change and how that can affect decisions about which products to use.

Integration of curriculum generally takes one of three forms along a continuum: correlated curricula in which the two disciplines follow parallel lines chronologically or by region; shared curricula in which major concepts are taught across disciplines; and reconstructed curricula in which understandings and concepts are merged across disciplines (Corcoran & Silander, 2009). Effective integration is facilitated when a cross-curricular teaching team works together to deliver a well-planned, rigorous lesson, unit, or project that engages and motivates students by showing both relevance and connections among subjects (WestEd, 2006).

In addition, pathways often use cooperative learning practices, which require students to work in groups, each with specific tasks that contribute to the whole effort. Not a new concept, cooperative learning, to be effective, requires training for both teachers and students. The research suggests that structured group learning is a promising approach that improves student achievement (Slavin, 1981).

Similarly, pathways use problem- and project-based learning, which organizes learning around topics that students manage, using inquiry to engage with issues and questions that are relevant to their lives. In pathways, using the multiple pathways approach, the projects can be, but are not always, set in authentic workplace contexts. Projects may also be used to assess students’ subject matter competence to complement or as an alternative to traditional testing.

Based on current practices in pathways using the multiple pathways approach, challenging, meaningful, integrated teaching and learning include the following elements:

- **Activities and active learning.** Teaching includes “hands on” approaches to facilitate learning.
- **Adult connections.** Students connect with caring adults, including professionals and other mentors outside of school who provide input and support.
- **Connections to the students' world.** Students see the connection with their own concerns, including their career interests and future goals.
- **Group and individual work.** Self-motivation and team work are both strengthened.
- **Inquiry and problem solving.** Class work engages students' higher-order thinking skills, applied to real problems outside the classroom, when possible.
- **Multiple levels.** Projects address multiple levels of ability or experience, including the abilities of special needs students.
- **Reflection.** Opportunities for reflection allow students to make connections among their experiences, and between school and their personal interests.
- **Relevance.** Contextualization enables students to see how concepts are applied in the world outside of school.
- **Rigor.** Academic and career technical requirements are challenging and connected to academic and industry standards (Steinberg, 1997).

CURRENT STATUS

The integration of curricula is facilitated in California through policies, organizational structures that bring teachers and other staff together across disciplines, and resources offered through both the state and various support organizations. For example, the UC is supporting integrated approaches through its approval of CTE courses as meeting a-g course requirements for admission.¹⁷

Arthur A. Benjamin Health Professions High School, Sacramento

Students in their mathematics and health sciences classes at Arthur A. Benjamin Health Professions High School in Sacramento learn about the calculations that insurance underwriters make. The students ponder a highly relevant question: How do high-risk lifestyle decisions and behaviors affect access to and premiums for health insurance? While the students address this important question, their Spanish class studies differences in mortality rates and causes of death in many Spanish-speaking countries and across ethnic groups in the United States. Spanish becomes an important tool for researching and understanding national and cultural differences in rates of illness, and injury, and causes of death (ConnectEd, 2010).

¹⁷ For more information, see Chapter 8.

Over 7,600 district-administered CTE courses, plus an additional 920 ROCP-administered courses, have been approved to date. By definition, most of these courses combine both theory and application so they can be considered to be inherently integrated. These courses are further integrated when projects or other strategies are used to link the CTE content with other academic core content.

From a structural perspective, California's primary vehicle for implementing curriculum and instruction that integrates CTE and academic content is through academy programs. In addition, many ROCP classes integrate CTE and academics, either alone, or in collaboration with district academic teachers. Small, career-themed high schools, many small learning communities within comprehensive high schools, and some magnet schools also support effective curriculum integration.

Center for Advanced Research and Technology

The Center for Advanced Research and Technology (CART) combines rigorous CTE courses with academic courses. Eleventh and twelfth grade students attend CART for half the school day, taking courses focused on the career areas of professional sciences, advanced communications, global issues, and engineering and product development. Students are actively working in teams to research real-world problems and discover original solutions. Academic instructors and business partners guide the work on projects. Students have access to the latest technology and are expected to include their community in integrated projects. The Clovis and Fresno school districts jointly operate CART, and even though students are bused to the site from their "home" schools, there is often a waiting list.

Currently, there are 478 state-funded California Partnership Academies. To receive funding, these academies must follow a model that includes elements supporting integration. CPAs provide examples of structures that facilitate successful, high-quality, integrated academic and CTE curriculum. The CPA model requires academic and CTE teachers to work across disciplines in grades ten through twelve. The teaching team has common planning time to develop integrated units and projects for which students can earn credit in more than one course. Grading procedures and rubrics are developed jointly. Project-based learning workshops are conducted for new academies.

California also has 39 National Academy Foundation (NAF) academies that adhere to a similar model. In addition, in 2001 the federal government provided funds to establish small learning communities, and these funds have continued through 2008. In California, 223 high schools have qualified for these competitive grants, and 168 report following some form of the academy model.

East San Gabriel Valley Regional Occupational Program and Technical Center

The East San Gabriel Valley Regional Occupational Program and Technical Center, serving seven East Los Angeles school districts, offers courses in career pathways related to arts and communication, business, health services, marketing, public services, and technology. All courses teach both career-specific skills and related academic skills. Work-based learning is offered in many classes, and student support services include career assessment, academics reinforcement, childcare, transportation, job development, job placement, and Department of Rehabilitation services. Many of the courses have articulation agreements with one or more colleges.

Existing Resources

Teachers need access to a wide range of standards-based, integrated teaching lessons and projects. Currently, some of this curriculum is available from the following sources:

- The Buck Institute for Education offers teacher workshops to design, conduct, and assess standards-based projects. Academic and CTE teachers can use the Institute's *Project Based Learning Handbook* to integrate their disciplines (<http://www.bie.org>).
- ConnectED has integrated, problem-based curriculum units developed in partnership with the National Consortium on Health Science and Technical Education. This curriculum is available to any California high school through the ConnectEd Web site (<http://www.connectedcalifornia.org>). In addition, schools that have participated in ConnectEd's professional development programs also can, without charge, access integrated curricula for engineering and architecture. ConnectED is also working with schools to pilot programs and project-based curriculum in arts, media, and entertainment; health sciences; law; and engineering. In addition, ConnectED has developed pre-algebra and algebra curricula designed to be project-based and prepare students for engineering and other pathways. ConnectEd has two free booklets, *Characteristics of an Effective Integrated Curriculum* and *Designing Multidisciplinary Integrated Curriculum Units*.
- Ford Partnership for Advanced Studies (Ford PAS), with the Education Development Center (EDC), has free, interdisciplinary, project-based curriculum modules. Ford PAS offers 20 curriculum modules on themes, such as business, economics, engineering, sustainability, and technology, and develops foundational skills in communication, research, teamwork, critical thinking, and problem solving. In addition, Ford PAS supports a national network of professional development providers and regional centers to support program implementation (<http://www.fordpas.org>).
- EDC has foundational courses for media and digital design and law and justice pathways as well as lessons, work-based scenarios, and lesson templates that weave core information technology skills into CTE courses across industry sectors (<http://www.edc.org>).

- NAF has a contract with WestEd to develop assessments in four areas: finance, business, engineering, and health. NAF also has curricula and projects on its Web site, which is limited to NAF members who pay a fee (<http://www.naf.org>).
- Project Lead the Way is a national, nonprofit organization with integrated curriculum for engineering and biomedical science and a focus on high-level mathematics and science, integrated with technology. Schools using Project Lead the Way sign an agreement regarding standards and practices, and teachers must attend Project Lead the Way training (<http://pltw.org>).
- Several schools and academies, such as Digital Safari at Mt. Diablo High School, Sir Francis Drake High School, and High Tech High post curriculum and student work on Web sites.

In addition, SB 70 and SB 1133 funded the CTE Pathways Initiative and CTE Online (<http://www.cteonline.org>), which has online tools that are cross-referenced to the Standardized Testing and Reporting (STAR) program and CAHSEE tests.

In the same initiative, funding was provided for 42 “green” academies as part of the Construction Industry Sector Career Pathways Regional Projects. The CDE has contracted with the Career Academy Support Network (CASN), University of California, Berkeley, to find and catalogue high-quality curriculum related to “green” industries. Some of this curriculum will integrate academic and career technical learning. A guide to existing curriculum will be online on a new Web site CASN is designing for academies. The CDE also contracted with the Advanced Transportation Technology and Energy program at West Valley College, Saratoga, to develop curriculum related to emerging technologies. This curriculum is focused on career technical learning, but it can be integrated with mathematics and science.

CHALLENGES

Many challenges exist to integrating a core academic curriculum with a career technical core of related courses and to teacher collaboration and teaming.

Organization of High Schools

Traditionally, high schools are divided into departments by discipline, and teachers in these departments are usually housed near each other with time for department meetings. Teachers rarely have opportunity to collaborate across disciplines.

In addition, career-based courses are often located in different buildings than academic courses. ROCPs locate programs strategically within districts to cost-effectively maximize student access to specialized facilities and equipment. ROCP programs, which offer the capstone course for many CTE course sequences, are therefore sometimes located on a separate campus with separate staff. These facility arrangements — both within a single campus and across campuses — sometimes make it difficult to integrate curriculum across academic courses and CTE.

Time

Teachers also lack the time to work together. As discussed in the *A Statewide Assessment of California's Career Technical Education System* (WestEd, 2006), teachers throughout the state requested time to work with other teachers to develop curriculum and plan units of instruction.

Standards and Assessment

The current statewide benchmarks for success in schools are measured by standardized tests, and only academic standards are assessed. Many teachers of academic subjects are required to spend substantial amounts of class time ensuring that students master the skills required by the assessments. As a result, many teachers have little time or interest in including CTE standards in their instruction.

Further, while the state adopted curriculum standards in CTE that align with academic content standards (CDE, 2006), the two sets of standards are still separate and distinct documents. The accompanying frameworks are also separate, and while the CTE curriculum framework (CDE, 2007) facilitates alignment of CTE course content with academics, the academic content frameworks only minimally reference applications of learning within careers.

Dearth of Existing Curricula or Means to Share Curricula

Many excellent curricula exist in CTE, often leading to industry certifications, for example, through the National Institute for Metalworking Skills or the National Automotive Technicians Education Foundation. However, few customizable integrated units exist that explicitly connect academics with technical knowledge and skills to bring relevance and meaning to students' academic experiences. These units can be offered as part of the academic courses aligned to the industry theme, through the CTE class, or through collaboratively taught classes. The integrated curricula and other materials developed by NAF and Project Lead the Way are only available to the relatively small numbers of schools in their respective networks. In addition, existing Web sites do not yet serve as statewide clearinghouses for integrated curricula.

Balancing Integration with "Integrity"

The multiple pathways approach challenges the very definition of CTE and academic courses. While the California *Education Code* and the *2008–2012 California State Plan for Career Technical Education* define academic and CTE courses, and databases such as the California Basic Educational Data System (CBEDS) identify courses as either "CTE" or "academic," the distinction may blur with time, as academic courses begin to incorporate applied learning strategies, and CTE courses incorporate increasing levels of theory. However, this integration can also compromise the integrity of each set of disciplines if it is not done thoughtfully. For example, some CTE educators are concerned that CTE courses will be "watered down," losing the very characteristics of hands-on, applied teaching and learning that engages students and promotes understanding of theoretical

concepts, the development of problem-solving and other higher-order thinking skills, other essential workplace skills, and career awareness. At the same time, while career themes may help organize and motivate learning, students in pathways must acquire broad transferable academic and workplace skills, with teachers highlighting this transferability.

Teacher Credentials and Preparation

Teacher credentialing requirements and regulations differ for academic and some CTE teachers¹⁸ and focus on subject-matter expertise; neither academic nor CTE teachers are prepared to think across "subject-matter divides" (Rose, 2007). While CTE teachers have experience with hands-on teaching strategies, using hands-on or contextualized approaches to teaching may be particularly challenging for academic teachers, who are more accustomed to lecture and other traditional methods of instruction (Silverberg et al., 2004; WestEd, 2006). A related issue in some districts is the union contract and use of teacher time, class size, and work year for academic versus CTE teachers. Creating a culture of collaboration that spans differences in teaching approaches is critical to successful integration (WestEd, 2006; Peterson, 1994).

School and Student Scheduling

School and student schedules present another substantial challenge.¹⁹ If schools are on a six-period day, and students are attempting to fulfill the a-g requirements, completing a four-year sequence of integrated technical core classes may be difficult and, at times, impossible. Compounding the problem is the fact that many underperforming students are placed in "support" classes to remediate low scores in mathematics and reading. As a result, these students have no time for electives. Similarly, high-achieving students may prefer enrollment in an Advanced Placement class instead of a CTE class.

While students and counselors welcome additional CTE courses that meet a-g requirements, developing a four-year sequence of such courses is difficult. Some schools have tried to alleviate the scheduling problem by moving to a seven-period day or block scheduling, which allows students to enroll in seven or eight courses each semester. However, this schedule may be more costly, and given the current economic difficulties, many schools are returning to the more traditional six-period day.

Related challenges in developing integrated curricula related to scheduling include: 1) the necessity for teachers to share a common cohort of students; 2) the difficulty of scheduling the teachers in pathways so that they have cohesive "blocks" of classes; 3) the difficulty of achieving common cohorts when same-grade students are spread across many different levels within a subject area, as is often the case in mathematics; 4) adherence to pacing charts and benchmark testing, as well as prescriptive activities within the scope and sequence of a given course, such as in U.S. history, which allows little flexibility for integrated strategies and projects; and 5) the variation in school-day

18 While district CTE instructors have Single Subject and Multiple Subject Credentials, just like academic teachers, ROCP teachers are required to have Designated Subjects Credentials.

19 For more information, see Chapter 6.

schedules among different campuses within the same district, which may be an obstacle to cross-enrolled scheduling for capstone ROCP classes held at other sites.

Funding

Many fiscal challenges exist to the successful integration of academic and CTE learning with a multi-disciplinary team of teachers (Clark et al., 2007). Funding streams are different for academic versus CTE courses, as are regulations for using these funds. The funds are also allocated separately by state and federal agencies. For example, Carl D. Perkins (Perkins) funding comes from the U.S. Department of Education through the CDE, with paperwork completed based on Perkins requirements. ROCPs have their own state funding and funding requirements, which assured some support for the CTE element of a pathway until the current fiscal situation. At the district and school levels, funds are distributed to departments, usually based on student enrollment. This web of complex funding streams and regulations is cumbersome for local educators.

In addition, there are budgetary constraints.²⁰ One of these, particularly relevant here, is the constraint to offering summer school courses that pathway students may need to complete even the minimum a-g course offerings, especially with the need for core subject intervention or support at the lower levels.

Policy

A challenge to the integration of academics and CTE is the persistent bifurcation in the California *Education Code*, in CBEDS, between what is considered “academic” and what is considered “CTE.” While distinctions may be important due to the requirements of separate funding streams and to ensure the integrity of both academic and CTE courses, current policy language perpetuates the notion that CTE courses are an “alternative” to college preparatory curricula, primarily intended to prepare students for entry-level employment immediately after high school, and not intended for students who expect to continue their education. The multiple pathways approach emphasizes the importance of students acquiring *both* academic and career technical skills to prepare them for a wide range of options after high school, and, equally important, so they can adapt flexibly to future changes in the economy. In this scenario, for students in pathways using the multiple pathways approach, neither CTE nor academics can be seen as “alternatives” to one another; rather, both must be offered.

CONCLUSION

To prepare California's students for success in a full range of postsecondary education and career opportunities, it is essential to develop new integrated curricula for pathways using the multiple pathways approach, improve access to existing curricula, and develop online tools and processes – including possibly a clearinghouse – to share high-quality, integrated lessons, units, projects,

²⁰ For more information, see Chapter 14.

and best practices among school districts throughout the state. At the same time, the CDE must ensure that all students in these pathways have access to a rigorous academic core curriculum and a rigorous career technical core curriculum, including industry certification programs.

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Chapter 4. Work-Based Learning

"This is a mini institute. We're the workers. We're doing real-world things here at this school. Everything is based on stuff that could happen outside of school once we start working. For example, in our projects, it's not just a group. Everybody has a different responsibility, especially the top dog, who is the project manager. In the real world, it would be our boss. It really trains us because we learn what we have to learn educationally, but we also learn what we have to learn socially or in the workforce."

— Student, Digital Media Academy

"One thing that's a really great thing about this Academy is the internships. I was able to intern all year in the emergency room at a local large hospital ... we had two patients come in who were in full arrest. I was able to do CPR on them, alongside the technicians, doctors, and respiratory therapist ... I think that was a huge experience for me because I was able to handle that..."

— Student, Health Academy

INTRODUCTION

In addition to curriculum that integrates applied learning, pathways also offer work-based-learning opportunities. Applied learning enables students to learn through doing, which can result in greater understanding than learning through reading and listening alone. Students are also able to see the results of their learning, which provides motivation. Applied learning often takes the form of project-based or problem-based learning. When this is the case, applied learning promotes problem-solving skills and other forms of higher-order thinking. Work-based learning is a form of applied learning that links school-based instruction with activity that has consequences beyond the class or value beyond success in school. It is judged by professional standards; it uses the workplace, or in-depth experience with employer or community input, to engage students and promote learning and access to future educational and career opportunities.

The benefits of using work-based learning within an overall educational program are multidimensional. It can help address students' diverse learning styles. Work-based learning can add relevance to the curriculum by showing students how classroom learning applies in the world, and it can expose students to diverse career options. In addition, work-based learning promotes psychological and social development. This learning links students with mentors and other caring adults, and it can provide students with opportunities to gain confidence and impact the world they will enter beyond school (National Research Council and the Institute of Medicine, 2004; Benard, 1995).

Work-based learning has traditionally been defined by a learning experience's location — in the workplace — typically arranged for individual students. For example, in California, work-based learning is often implemented in the form of work experience or internships offered through the "community classroom" or "cooperative CTE" methodologies. School-based enterprises, however, are also considered work-based learning, even though they usually occur at the school and are carried out by teams of students (CDE, 2008). A broader definition of work-based learning, including opportunities such as

school-based enterprises, community-based group projects, and technology-facilitated experiences, may be preferable and called for if access is to be extended to more students as a required component of pathway programs.²¹ High-quality work-based learning has these key components:

- An explicit link between the activity and the classroom curriculum
- Direct input from professionals outside the classroom
- Assessment of work products according to professional standards
- Consequences for students beyond the class or value beyond success in school

The link to the curriculum reinforces and enhances classroom learning and distinguishes work-based learning from employment. Direct input from the employer or community means feedback throughout the experience, including physical or virtual employer visits to the school. Adherence to professional standards brings “reality” to the need for attention to timeliness and quality. Finally, students’ experience of value beyond the classroom provides a sense of accomplishment that they may not experience through traditional classroom feedback, such as grades.

Work-based activities fall along a continuum of experiences for students and exhibit increasing levels of intensity over time. Experiences begin with in-school projects and progress to projects and experiences in the outside world, with increasing complexity and consequence. The continuum often includes career speakers and tours appropriate for students as early as the elementary years, followed by job shadowing, which can begin in the middle grades and the early high school years. The experience then progresses to service learning, school-based enterprises, social enterprises, and internships – all of which may lead to both further education and career preparation activities, such as apprenticeships beyond high school. Throughout, the relationship between students and outside professionals also expands from listening to speakers to formal informational interviews, mentoring, entry into “communities of practice” outside the classroom, and more formal student/employer relationships. This chapter discusses the general types of work-based learning in the context of the broad but rigorous definition of work-based learning provided above; criteria and requirements for effective practice; and programs currently available in California.

TYPES OF WORK-BASED LEARNING

Work-based learning can be categorized into the following four generic categories:

Internships are sustained learning experience in workplaces, designed to enrich classroom learning. Internships show students how their learning is applied in the world outside of school, offering access to tools, equipment, facilities, and expertise that are generally not available at school. Learning objectives are specified, and student performance is assessed. ROCPs often provide internships. They can be either unpaid, often offered as the “community classroom” for students in ROCPs, or paid,

²¹ The information in this chapter is based in part on research conducted with support of The James Irvine Foundation for a study entitled *Work-Based Learning in California: Opportunities and Models for Expansion* (Darche, Nayar, & Bracco, 2009).

offered as “cooperative CTE” for students in ROCs.²² Service learning is an internship that occurs in the nonprofit sector; it is of particular value to students who envision social services careers.

Enterprises and community-based projects can either be of a commercial nature, known as “school-based enterprises,” or of a social nature, recently named “social enterprises for learning” or “civic enterprises.” These entrepreneurial activities produce goods or services for sale or use to people other than the students involved. Examples include student-run cafes or video production studios that serve clients and may generate some revenue (though seldom enough to cover all costs). Social enterprises focus on community needs and produce services that benefit a specified “client,” such as a city agency. While social enterprises may continue over time, with successive groups of students participating, community-based projects are social enterprises of shorter duration.

Two School-Based Enterprises – One “Commercial” and One “Social”

The City of Petaluma asked Petaluma High School’s (PHS) construction arts program to provide street fixtures for downtown Petaluma. The City Council awarded the downtown redevelopment contract to the PHS program in 2003. Students in the drafting, metal, and wood shop classes have since designed, manufactured, and installed more than 300 metal benches, bike bollards, and other fixtures in the downtown. The construction arts program has used the proceeds from the work to upgrade shop tools and facilities to current industry standards so that PHS construction arts students can gain relevant industry experience. The program is now undergoing accreditation by the National Institute for Metalworking Skills.

At Emery Secondary School, in Emeryville, the Youth-Plan-Learn-Act-Now (Y-PLAN) experience involved a research project related to community needs that students completed in teams with the support of a UC Berkeley mentor. The project included the selection of a community project based on the needs assessments; investigation, site visits, and meetings with city officials to collect information and formulate solutions; synthesis of research and findings; ongoing reflection, writing, design, and modeling; preparation of final materials and a PowerPoint presentation; and a final presentation before community members, parents, school and school district administrators, and city officials.

Technical mentoring (or “virtual apprenticeship”) is work-based learning whereby professionals provide direct, systematic input to students’ actual work. Technical mentoring may occur in the workplace as part of an internship or in a classroom. It may also occur through video conferencing or Web-based applications. The use of electronic means to connect professionals and students enables more students to have access to input from professionals. Technical mentoring differs from career or personal mentoring in its focus on student work, rather than career exploration or personal growth.

²² There is no formal definition of “internship” in the California *Education Code*, only of “community classroom” and “cooperative vocational education” (now “cooperative CTE”), implemented primarily, but not exclusively, by ROCs, which then become the vehicles for offering internships. Work Experience Education can also be used to offer internships, but the monitoring requirements are lower than they are in ROCs.

Pedagogical Criteria for Effective Practice in Work-Based Learning

In the workplace:*

1. Experiences offer in-depth engagement that reinforces academic and technical content and promotes higher-order thinking skills.
2. Opportunities are provided for exposure to communities of practice and social networks that support cognitive, social, personal, and career development.
3. Opportunities are provided for rotation among positions and functions with exposure to multiple supervisors for career development purposes as well as enhanced learning.

In the classroom:

4. Opportunities are provided for reflection about the experiences and their connection to classroom learning and students' personal interests.

Connecting the workplace with the classroom for students:

5. Learning opportunities in the workplace or community are identified and aligned with academic and industry standards.
6. Learning objectives are specified through learning plans and monitored through close communication between teachers and employers.
7. Students receive close supervision from teachers or coordinators.

Assessment of learning in the workplace and classroom:

8. Student performance is assessed and documented, with input from the employer, client, or community.

* For those activities not physically taking place in the workplace, parallel experiences should be provided – for example, through school-based enterprises.

Simulated workplace experience mirrors work environments and is appropriate when students do not have direct access to workplaces, as may occur in automotive or construction programs. Simulation can be considered work-based learning when the industry has direct, sustained involvement in the program, allowing students to develop, apply, and demonstrate their skills in the context of industry standards, with feedback from industry representatives.

EFFECTIVE PRACTICE

High-quality, work-based learning approaches employ effective pedagogy and structure to engage students. Teacher knowledge and skills and effective partnerships with businesses and communities are also critical.

Pedagogy

Applied and work-based-learning experiences, to be effective, must be truly engaging, offer opportunities for reflection, be intentionally linked to classroom curriculum, and be assessed by both the teacher and the employer/client (Bailey, Hughes, & Moore, 2004; New Ways to Work [NWW], 2003; Darche, Nayar, & Bracco, 2009). Eight criteria are identified as effective practice for work-based learning (see box on next page) (Darche, Nayar, & Bracco, 2009).

Program Structure

The work-based learning programs' structure also has a direct bearing on the practice's effectiveness. For example, the following factors have been identified as effective practice for work-based learning:

- Experiences are connected to thematic programs and to students' interests.
- Experiences are sequenced.
- Teachers, counselors, and other staff at the school coordinate their services to support students.
- Partnerships are created with postsecondary institutions, apprenticeships, and job training programs.
- The work-based-learning coordination function is adequately staffed.
- School scheduling enables work-based learning.

In addition, the following programmatic elements are important structural issues that could enable more widespread implementation of work-based learning:

- The degree to which schools employ group versus individual activities is a key decision that requires attention at the outset of any new work-based-learning initiative (Stern, 1997). Group activities hold promise for expanding access to opportunities outside the classroom, as they are cost-effective and can multiply learning opportunities. Group activities may be particularly conducive to learning in situations where group approaches are actually used in industry.
- Better and more widespread use of technology holds promise for programs that can utilize technology to enhance learning. While not every industry lends itself to "virtual experiences," the use of technology offers a cost effective way to expand work-based learning and maintain equitable access to opportunities.

Teacher Knowledge and Skills

Another important factor for effective practice, in addition to teachers' core academic and career technical competencies, involves the following teacher knowledge and skills (Bailey, Hughes, & Moore, 2004; Grubb & Badway, 1998):

- Understanding the workplace and culture of the industries in which students are being placed
- Understanding students' academic requirements

- The ability to work both independently and in teams, and to model the kind of openness to learning that teachers hope to instill in students
- Skill in facilitation that enables teachers to help students reflect on their experiences in meaningful ways
- Communication and coordination skills

Partnerships with Businesses and Communities

The quality of partnerships with employers is also a critical factor. The employer/client perspective is what distinguishes work-based learning from other forms of pedagogy and makes it a particularly powerful strategy. Successful internships require close partnerships with employers in all aspects of the process (Hamilton & Hamilton, 1997).

Employers participate in work-based learning for various reasons, including recruiting future employees and helping to motivate their existing workers. If for-profit entities are to participate meaningfully over the long term, they will need to do so for more than philanthropic reasons, particularly if educators hope to place “at-risk” students in the workplace, given the increased levels of support that could be required (Bailey, Hughes, & Moore, 2004).

Partnership Building and Advisory Boards

Meaningful, mutually beneficial, ongoing partnerships with industry are the most important means to ensure quality work-based learning. It is important to nurture these relationships, both through well-designed advisory board structures and processes, and through ongoing communication. For example, the National Academy Foundation (NAF) trains educators in structuring and running effective advisory boards. Such boards not only identify opportunities for students, but can assist students in developing project ideas, provide input to student work, and provide support and input to teachers as they engage their students. From a systemic perspective, boards can encourage wider employer participation through peer-to-peer outreach, help develop employer orientation materials in their industries, and identify resources to sustain programs.

Personalized Relationships with Employers

Personal connections must be made to establish and maintain opportunities for students. The role of a coordinator in engaging employers is paramount. Once opportunities are established, further collaboration is required to create effective learning plans for students that also meet employers' needs.

In ROCs, the teacher is the work-based-learning coordinator. The ROC teacher, having come into education with experience in industry as required by the CTE credential, is responsible for employer outreach and student placement and monitoring. In academy programs, lead teachers often take on these responsibilities. In schoolwide or districtwide programs, coordinators may be assigned to work with employers and then link teachers and students with these opportunities. For example, the Petaluma Unified School District employs a “community entrepreneur” whose primary responsibility

is to engage the community and secure learning opportunities for students. In all cases, the involvement of individuals who understand *both* the world of education and industry is critical.

Continuity Through Systemic Approaches

Employers appreciate continuity and predictability in addition to well-organized processes. Events such as the annual "Groundhog Job Shadow Day," while not intended to provide in-depth experiences for students, nevertheless offer an opportunity to connect schools with the community and draw attention to the importance of career exposure for students. More significantly, continuity is offered through coursework and coordinators that employers can count on over time. In this way, employers can be assured of a growing qualified workforce in their industry and have a greater interest in investing in programs.

Other Administrative Requirements

Other administrative criteria important in conducting effective work-based learning include the following (NWW, 2003):

- Experiences comply with state and federal laws.
- The district or school has adequate liability and workers' compensation insurance.
- Students can easily and safely get to their opportunities; transportation is provided or provided for, as necessary.

CURRENT STATUS

Work-based learning is currently delivered through programs at comprehensive high schools, ROCPs, charter schools, and after-school programs. This section describes the various means by which work-based learning is delivered in California.

Academy Programs That Offer Work-Based Learning

California Partnership Academies

Work-based learning is mandatory for CPA students in the summer between their eleventh and twelfth grade years. All academy students participate in a mentoring experience during their junior year that encompasses career development, job or college shadowing, and goal setting. After their junior year, students performing well enough to be on track for graduation are placed in jobs, with employers making the hiring decisions. The local ROCP provides many of the CPA work-based learning opportunities.

National Academy Foundation Academies

NAF academies operate as small learning communities in high schools or autonomous small schools across the country. Required work-based learning in the NAF academies takes the form of internships,

most of which are paid. These internships (which typically last between six and ten weeks) are an extension of the NAF academy classroom instruction and curriculum and are supervised by business leaders in a professional setting.

Regional Occupational Centers and Programs

The majority of work-based-learning opportunities are provided through 74 ROCPs serving every California school district. ROCPs offer both paid and non-paid workplace experiences. ROCP instructors facilitate student placements and monitor the experiences through site visits. Businesses have formal training agreements with local ROCPs to allow hands-on training at the workplace, under the supervision of a CTE-credentialed teacher who has industry experience and often has pre-existing relationships with employers. Coordinating and supervising the community classroom and cooperative CTE components are an integral part of an ROCP instructor's responsibilities, with paid time allotted for this task. Many ROCP courses offer industry-recognized certification, in addition to ROCP certificates based on industry standards.

Until ROCPs were put into categorical flexibility,²³ they collected average daily attendance (ADA) funding for student participation in all of the courses when students enrolled in ROCP classes beyond the 240 minutes required in the district's school day. The California *Education Code* prescribes the formulas for calculating ADA on the basis of the amount of time students spend in the workplace for either paid or unpaid work-based learning. The ROCP funding stream therefore expanded students' school days and enabled teachers to supervise students in the workplace.

Supervised Agricultural Experience

The Supervised Agricultural Experience program provides workplace or entrepreneurial projects that students carry out under the supervision of their instructors and often with guidance and advice from industry members. This student experience program is a stated component for all agricultural education programs and the students enrolled in them, as stated in California *Education Code* Section 52454. This component involves thousands of agricultural students statewide who conduct supervised agricultural experience projects in every career pathway area of Agriculture and Natural Resources. This program gives students opportunities to conduct their projects and advance their education; but it also provides them the chance to exhibit at county, district, and state fairs, and compete in the Proficiency Awards Program at the local, region, state, and national levels of the FFA student organization to measure their competency.

Other Opportunities in Comprehensive High Schools

Several types of work-based-learning opportunities are available within comprehensive high schools, which receive funding through the CDE, are formally designated in the California *Education Code*, or are in formal partnership with the CDE. These opportunities include service learning, Work Experience

²³ These flexibility provisions authorize local educational agencies to use these categorical funds for any educational purpose over a five-year period ending July 1, 2013.

Education (WEE), WorkAbility, and CTE student organization activities. Internships, school-based enterprises, and other types of experiences are implemented, but they are not formally recognized in the California *Education Code*.

Service Learning

Service learning is an instructional strategy whereby students learn academic content standards by participating in organized service that addresses community needs and fosters civic responsibility. While service learning involves community service, it goes beyond the current community service requirements in many California high schools. True service learning is intentionally connected to the classroom curriculum, and it provides an opportunity for integration through well-planned projects that involve both academic and CTE knowledge and staff. The Fowler Unified School District uses service learning to integrate academic learning with real life projects in the community. The district reports better student attendance, higher graduation rates, and better test scores. In the alternative school, students at-risk of dropping out have combined mathematics knowledge and construction skills to build sheds, teacher demonstration tables, and student benches for an elementary school. Similarly, in the Los Angeles Unified School District, algebra students are applying their mathematics skills in addressing irrigation issues.

Work Experience Education

WEE is a course of study that the governing board of any school district or local educational agency may establish according to provisions of the California *Education Code*. WEE programs extend learning experiences into the community where worksites become learning laboratories. While there are no "extra" funds for WEE, a school district may allocate some of its general fund dollars towards this program or use Perkins funding. The WEE program combines a workplace component with related classroom instruction to "maximize the value of the on-the-job experience" (CDE, 2009).²⁴ Three kinds of WEE are offered: "exploratory" is for unpaid career exploration; "vocational" focuses on specific occupations and is either paid or unpaid depending on the work-site placement; and "general" provides general workplace skills and is paid. Of the three kinds of WEE, "vocational work experience" holds the most promise for providing experiences linked to specific career-themed classroom curricula. However, the difficulty in achieving a "critical mass" of students in a single industry area to form a full vocational WEE class makes these classes difficult to offer. The exception may be in agriculture, which enrolls large numbers of students, as the vocational WEE does at Tulare High School. At the same time, while general work experience is not focused on a specific industry, general work experience teachers are knowledgeable about labor law and workplace practices and can collaborate with academic and other CTE teachers across pathway programs to help ensure that students have access to high-quality, work-based-learning opportunities.

24 To obtain a copy of the *Work Experience Education Guide*, e-mail Kimberly Born at kborn@cde.ca.gov.

WorkAbility

WorkAbility is a work experience designed specifically for students with special needs. The program's mission is "to promote the involvement of key stakeholders including students, families, educators, employers and other agencies in planning and implementing an array of services that will culminate in successful student transition to employment, lifelong learning and quality of life." WorkAbility includes a school-based component, connecting activities, such as career assessment and exploration, and work-based learning. Students receive subsidized or unsubsidized wages. While WorkAbility only serves a small percentage of the student population, it is a critical program for students with special needs. In addition, it can serve as a model for other work-based-learning efforts within pathway programs (Darche, Bracco, & Nayar 2009).

Career Technical Student Organizations

Although competitions sponsored by career technical student organizations (CTSO) are not usually considered work-based learning, so many aspects of these experiences reflect high-quality practice in work-based learning that they can be considered a form of work-based learning. CTSOs recognized by the CDE include Distributive Education Clubs of America, FHA-HERO, Future Business Leaders of America, FFA, Health Occupations Students of America, and Skills USA, with FFA being the largest. Like other CTSOs, FFA combines in-class activities; student-directed independent projects (which may take place at or outside the school site and be paid, unpaid, or entrepreneurial); and CTSO-directed activities, such as chapter meetings and competitions, to foster students' workplace skill development, technical skills and knowledge, citizenship and leadership skills, and academic success.

Business and industry leaders support CTSOs through donations to their foundations and participation in alumni groups, leadership, and judging competitions. CTSOs are often described as a "family," with the tight-knit connections among instructors, industry, and students supporting alignment of educational goals with industry goals, and facilitating students' seamless progression from high school to postsecondary education and careers.

Virtual Enterprise

Simulated workplace environments, like Virtual Enterprise (<http://www.virtualenterprise.org>), allow students to engage in the hands-on learning of an internship or other work-based placement in a controlled environment. Virtual Enterprise takes place on the school campus and online, and it avoids many of the logistical complications (such as workers compensation, transportation, and multi-site supervision) of workplace-based learning. Virtual Enterprises are often part of or the entire business education course; they can be a component of a coherent sequence of courses leading to a culminating capstone activity or course. Students set up and operate a "virtual" business with local business partners. The students decide on the business, its products or services, and management structure; use current software; develop communication skills; and operate their virtual business on the Internet in a global network, using both academic and career and technical knowledge. The Virtual Enterprise Center is in Bakersfield in the Kern High School District and currently serves over 4,000 students in 147 schools in California.

Charter Schools

Charter schools are public schools that provide instruction in any of grades K–12 and may have a content theme, such as art or engineering, or a pedagogical theme, such as project-based learning. The existence of a critical mass of students in one industry sector facilitates internships and other forms of work-based learning. Oakland School for the Arts is an example of such a charter school. Similarly, schools that include project-based learning or "learning through internships" can establish systematic processes, with quality controls, to provide worthwhile experiences for students and industry partners. High Tech High in San Diego and the San Diego Met High School are examples.

In addition, charter school teachers may choose to not join the teachers' union or to waive their union rights, enabling them to work different hours than might otherwise be allowable. This flexibility can facilitate successful work-based learning by allowing teachers to meet with employers or conduct site visits outside of the normal school day. In addition to those schools mentioned, the Envision schools and the Center for Applied Research and Technology, a joint venture of the Fresno and Clovis school districts, have utilized the charter school model for the flexibility that it affords.

After-School Programs

After-school programs generally do not offer the kinds of work-based learning that would meet all the criteria listed earlier. However, if coordinated with academies and classrooms, after-school programs can augment school capacity. To the extent that some organizations have as their mission expanding career opportunities for youth (e.g., Girls Inc.) and have built strong relationships with employers, these programs can sometimes serve as intermediaries between schools and employers.

Examples of Programs Supported by Other Organizations

The following programs are only a few examples of work-based learning offered by non-state supported initiatives. They exemplify high-quality practice and offer opportunities for replication or expansion of work-based learning. Each program is supported or coordinated by a third-party organization that provides expertise, materials, and tools and often leverages other resources.

Social Enterprises for Learning

Social enterprises for learning are similar to school-based enterprises, but they focus on social rather than commercial activity. Social Enterprises for Learning (SEfL), operated through UC Berkeley's Center for Cities and Schools (<http://citiesandschools.berkeley.edu>), are school-based, community-driven enterprises in which students identify a community need and work with local government and the community to develop a product or specific service to address that need. SEfLs aim to: a) produce goods or services for clients or customers; b) provide benefits to a larger community or general public; and c) enable participants to develop a specific knowledge or skill. To the extent possible, students initiate, plan, design, and manage their own projects. Center-sponsored SEfLs are currently operating in the San Francisco Unified School District, West Contra Costa Unified School District, and Emery Unified School District.

ACME Animation Network

ACME is an example of a technology-facilitated forum. It is a third-party virtual space that provides resources to high school students in animation courses. A tiered system of peer and professional feedback and advice allows students to receive guidance on their work from college students and professional animators as well as from their instructors. ACME students can have valuable contact with professionals representing an industry that may not be in their geographical area. ACME currently operates in 59 schools and serves almost 1,500 students.

CHALLENGES

The challenges to implementing work-based learning fall into the following interrelated categories.

Definitional Issues

Work-based learning is generally thought to occur in workplaces, with individual students placed with individual employers. However, this model is not always possible or desirable. Placing large numbers of students into workplaces would be very difficult. An expanded definition of work-based learning would facilitate access to these experiences while imparting the benefits of work-based learning. Further, current work-based-learning definitions and policies in the California *Education Code* and the California *Code of Regulations* may constrain implementation of work-based learning in pathways. The following are some examples:

- **Community classroom and cooperative CTE.** The definition of community classroom reflects the past view of CTE and work-based learning as preparing students primarily for entry-level employment: "'Community Classroom' is an instructional methodology which utilizes unpaid on-the-job training experiences at business, industry, and public agency sites to assist students in acquiring those competencies (skills, knowledge, and attitudes) necessary to acquire entry-level employment" (<http://www.cawee.org/Legal/Barclays.pdf>). This definition would be more consistent with the aims of the multiple pathways approach if it read "to prepare students for entry-level employment, postsecondary education and long-term careers."

In addition, a community classroom teacher is defined as "the certified vocational education instructor, employed by the local educational agency operating a community classroom" (<http://www.cawee.org/Legal/Barclays.pdf>). The requirement that these methodologies be implemented only by CTE instructors suggests that if academic teachers within pathways choose to implement these methodologies, they would have to do so in a team with a CTE instructor, or obtain a CTE credential. In a team situation, however, workplace supervision usually would need to be the responsibility of the CTE teacher, who would be more familiar than the academic teacher about industry safety issues.

- **Internship and field study.** There is no formal definition in the California *Education Code* of "internship," "field study," "school-based enterprise," "social enterprise for learning," or other forms of work-based learning that could be offered through either an academic or a CTE course.

- **Classroom-based instruction.** SB 740 (2001) defines “classroom-based instruction” as occurring when students are under the immediate supervision and control of a credentialed, charter school employee at the school site. SB 740’s restrictions may limit the amount of offsite work-based learning in charter schools. In placing significant requirements on schools using more than 20 percent of their instructional time for “non-classroom-based instruction,” SB 740 combines internships, independent study, homeschooling, and distance education, among other activities, into a single, restricted category (Darche, Bracco, & Nayar 2009).²⁵

Time

The time to place and monitor students in the workplace, and the lack of flexibility regarding the school schedule are additional challenges. Short class periods make work-based learning difficult, and travel time adds further constraints. Block periods are critical for applied and project-based learning and facilitate work-based learning, but the 240-minute school day can still pose a challenge. Schools have used ROCs to extend the school day, given that ROCs could draw down ADA for student enrollments beyond the 240-minute school day. However, the current budget situation may jeopardize this strategy. In addition, lack of time in the school day for work-based learning is aggravated by requirements for school improvement efforts that do not support a multiple pathways approach.

Finally, in some cases, after-school programs can, like ROCs, serve to expand the school day. However, these programs and experiences must be tightly coordinated with classroom curricula and expectations (Darche, Bracco, & Nayar, 2009).

Quality and Lack of Models

Although real engagement at the workplace, the need for reflection in the classroom, and curricular connection between the two are important for work-based learning (Bailey, Hughes, & Moore, 2004; Grubb & Badway, 1998), these features are not always present, especially in programs that are not designed and monitored carefully, or when scheduling limits the amount of time students can spend in workplaces. In addition to work-based learning programs offered by the ROC delivery system, more models of quality work-based learning in comprehensive high schools are needed.

Transportation

Transportation is a significant logistical concern. Students with their own transportation or with access to public transportation have advantages over other students.²⁶ When individual placements are desirable to enhance student learning, student access to transportation is critical. Palmdale High School’s work-based-learning programs use donated vans to transport students. Like most ROCs,

25 Charter school students may enroll in ROC courses as concurrently enrolled students. However, further inquiry is necessary to ascertain whether the unique allocation of charter school ADA — calculated not by instructional minutes per day, but by instructional minutes per year — would impact charter schools’ access to ROC ADA.

26 According to one contributor to this study, changes in driver’s license laws for teenagers make transportation an even greater challenge.

East San Gabriel Valley ROP dedicates funding to buses, while San Francisco's Build SF relies on public transportation.

Teacher Capacity, Experience, and Preparation — A Place for One Stops

Teacher capacity to develop offsite work-based-learning opportunities and the lack of teacher experience in the workplace are additional challenges. While ROCP teachers have this experience, most other teachers do not. Teachers must have knowledge about the opportunities available, both across the community and within the organizations. They must also be able to link workplace learning to the classroom curriculum. Ongoing professional development is needed, including externships in industry.²⁷ Further, closer collaboration between ROCP and academic teachers could enable each to focus on its area of expertise. Engaging the support of staff at local Workforce Investment Board (WIB) One-Stop Business and Career Centers would also expand teacher capacity.

Employer Engagement

Outside of ROCPs, many districts do not have meaningful relationships with their local employers and communities. Time and knowledge are needed to build and nurture employer relationships, including advisory committees. In addition, for those work-based-learning opportunities that take place at employer worksites, sufficient opportunities are needed to accommodate the increased numbers of students in pathway programs in a given community, particularly during a time of high unemployment. In rural areas, access to opportunities is particularly challenging, calling for creative solutions such as greater use of technology to bring employers to classrooms virtually. Local WIBs, as well as existing ROCPs and other advisory boards, can play a significant role in linking employers with districts and promoting quality work-based learning.²⁸ In addition, contributors to this study have argued that a central database is needed to help broker relationships between districts or schools and industry. Tax incentives for businesses to provide work-based learning have also been proposed.

Funding

Prior to 2009, funding for work-based learning (beyond WEE) was largely provided through ADA generated by ROCP attendance, and it may now be provided through ROCP block funding at districts' discretion.²⁹ Federal Perkins funds may be used to support start-up and improvement of work-based

²⁷ For more information, see Chapter 10.

²⁸ For more information, see Chapter 9.

²⁹ ROCP funding revenue limits and caps were established in 1980 and have not been adjusted to account for shifts in population or labor market demands; they also do not account for the fact that the "community classroom" and "cooperative CTE" instructional methodologies are more expensive to implement than classroom-based activities. While the ADA-based funding structure is not in effect with "flexibility," these previous funding levels affect the total block of funds that ROCPs receive and can therefore impact the availability of work-based learning for students. Unless legislation is enacted to extend or modify "flexibility," the ROCP funding structure will return on July 1, 2013.

learning for students in approved CTE programs (CDE & CCCCCO, 2008)³⁰ but not ongoing operation. Some resources are available through the CDE for service learning and for the coordination of work-based learning offered in CPAs. In addition, Workforce Investment Act funding, administered through local WIBs, may be used for work-based learning for some students. Beyond these funds and those provided through nonprofit and private sector initiatives, no resources are specifically designated for work-based learning that non-CTE teachers may want to implement to enhance their courses, as had been the case when funds were available through the National School-to-Work Opportunities Act.

Data and Accountability

Currently, data are not systematically captured on work-based learning except for WEE, so it is difficult to ascertain the degree to which it is used as an educational methodology, either in schools or ROCs. As a result, it is also difficult to assess quality. More generally, one of the most challenging policy barriers to work-based learning is the current emphasis on high-stakes standardized testing. The current accountability system limits the definition of "rigor" to what can be measured on standardized tests, thus deemphasizing activities that may be more rigorous but that are more difficult to measure (Grubb & Oakes, 2007; WestEd, 2006). In addition, the standards against which achievement is assessed emphasize breadth versus depth (ACT, 2007), whereas work-based learning is intended to promote depth of understanding.

Workers' Compensation and Liability Insurance

Workers' compensation coverage is required in the California *Education Code* and state and federal labor laws to implement work-based learning. If work-based-learning opportunities are paid, employers assume responsibility for workers' compensation, but if they are unpaid, the district must ensure that it has the appropriate policies to cover students in the case of accident or injury. The California *Education Code* requires ROCs to have these policies in place (CDE, 2008). School districts must also provide workers' compensation insurance for students in exploratory (unpaid) work experience (<http://www.cde.ca.gov/ci/ct/we>). Most likely, all districts currently maintain adequate coverage to run work-based-learning programs. However, significant expansion of work-based-learning placements in workplaces may require some districts to review their policies and ensure that the teachers supervising the experiences are knowledgeable about relevant safety issues.

30 From the 2008–2012 California State Plan for Career Technical Education: Courses assisted with Perkins IV funds must be integral to an approved CTE sequence of courses; be explicitly designed to prepare students with career skills that lead to employment (employment could be at the completion of high school, community college, apprenticeship, or four-year college or university); have no less than 50 percent of course curriculum and content directly related to the development of career knowledge and skills (the California CTE model curriculum standards and frameworks can be useful tools in ensuring and validating that sufficient CTE content is embedded in the curriculum); have business and industry involvement in the development and validation of the curriculum; and be taught by a teacher who meets the CTE teacher credential and occupational experience qualifications.

CONCLUSION

Work-based learning is a central component of pathways in the multiple pathways approach. However, opportunities for work-based learning have changed over the past decades. It is important that California policy supports new forms of work-based learning, including school-based enterprises, social enterprises for learning and community-based group projects, and technology-facilitated experiences. California needs to align its policy and regulatory frameworks to support work-based-learning opportunities and to ensure that work-based learning is closely linked to high-quality pathways curricula. This alignment will involve the identification of staff who can work with both teachers and employers to reach out to employers, identify opportunities, match students with opportunities, and oversee student work. While classroom teachers may have the capacity to do this, especially those with industry experience, non-classroom-based staff may have greater capacity and experience to serve as work-based-learning coordinators. Regardless, teachers and counselors with little experience outside of education can benefit from externships in industry to better understand the needs of the workplace and help their students connect their work-based-learning experiences to the classroom and to their personal interests and goals.

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Chapter 5. In-School Support

INTRODUCTION

In the context of implementation of the multiple pathways approach, student success is defined as students graduating from high school well equipped to take advantage of the full range of ongoing educational opportunities and move into the world of work, without need of remediation. Many factors contribute to student success, but this chapter focuses on the fourth core component of multiple pathways approach, in-school supports for students – which are critical to their success in *both* the academic and career domains.

EFFECTIVE PRACTICE

Research studies on improving low-performing high schools suggest the following five key effective practices that districts and schools should address in reforming high schools (Fleischman & Heppen, 2009):

- Providing a personalized and orderly learning environment
- Supporting students who enter high school with poor academic skills
- Improving instructional content and practice
- Preparing students for the world beyond high school
- Helping staff to use data effectively

Sacramento City Unified School District's (SCUSD) systemwide high school redesign efforts, begun in 2000, reflect these five effective practices. The effort is known as *e21: Education for the 21st Century*, and it is built on essential elements that align and extend the five effective practices described above:

- Small, caring personalized learning communities
- Student-centered systems with student supports and safety nets
- Student pathways to the world of work and postsecondary education
- Rigorous, relevant, standards-driven teaching and learning
- Culture of continuous learning
- Collective responsibility
- Home-school-community alliances

SCUSD students and parents can choose from 36 small learning communities (SLCs) that are largely career-themed at the comprehensive high schools, and six small theme-based high schools. While SCUSD continues to work on improvement, the graduation rate districtwide has increased, and these graduates have completed an increased number of graduation requirements, including the a-g

requirements. Achievement scores have improved; dropout rates have decreased; students report feeling more connected to adults; and although the district is experiencing declining enrollment, the number of high school students has increased.

Luther Burbank High School in SCUSD has a diverse population of approximately 2,060 students and provides programs that range from English language development to the International Baccalaureate Diploma. The school is organized into seven SLCs, each centered on a pathway theme, where students are placed into groups of approximately 300 students and share the same core teachers, a counselor, and a specific geographic area of the school site. The SLCs allow the school to connect to the community and increase instructional relevance. The themes are Medical and Health Science, Legal and Social Justice, Information Technology, Architectural and Industrial Technology, Public Service, Arts and Communication, and International and Environmental Studies.

The factors described here are common in pathways and help students feel supported, valued, and part of a family. Pathways achieve this feeling through consciously creating strong teacher-student relationships, teacher teamwork, and a personalized learning environment in which each student's learning needs are well known and individually addressed. Daily instruction is designed with the knowledge that students vary in their preferred method of gaining information, understanding ideas, and demonstrating mastery.

COMPREHENSIVE SCHOOL COUNSELING AND SUPPORT PROGRAMS

The CDE published *The California Results-Based School Counseling and Student Support Guidelines* to help counties, districts, and schools strengthen their existing school counseling and student support programs or to create such programs where none exist. The CDE *Guidelines* define a comprehensive school counseling and student support program as providing guidance, counseling, and student support in the academic, career, and personal/social domains that is available for all students. The academic domain focuses on helping students to experience academic success, produce high-quality work, and prepare them for a full range of options after high school. Academic development includes acquiring decision-making, problem-solving, and goal-setting skills (CDE, 2007).

The career domain addresses helping students to develop skills, attitudes, and knowledge that facilitate the transition from school to the world of work and from various jobs across the career span in today's workforce. Students may explore career interests and options, participate in service-learning projects, perform apprenticeships, and plan and pursue postsecondary study (CDE, 2007). For both the academic and career domains, effective counseling programs ensure that parents and students receive adequate information and tools to make choices that best meet the students' needs and goals.

The personal/social domain addresses the personal and social development of students as they progress through school and into adulthood. It helps students to understand themselves; respect the rights and needs of others; acquire methods for peacefully resolving differences; and learn how to most appropriately define and display their interests, abilities, and aptitudes (CDE, 2007).

A comprehensive school counseling and student support program has a foundation that connects school counseling and student support to the school's overall mission, a delivery system, a management system, and an accountability system (CDE, 2007). An effective program should have a guidance curriculum of developmentally appropriate and sequenced lessons. It includes a curriculum that is delivered in classrooms (ideally, a collaboration of the school counselor with the classroom teacher), as well as the guidance that provides intensive services to individuals or groups of students who need more support to be academically successful. Finally, a comprehensive counseling program is one that establishes caseload levels for counselors and other support personnel to ensure that every student has access to their services.

Pathways in the multiple pathways approach should have designated counselors who know students well and who are part of the pathway team. The counselor plays a significant role in recruiting students, coordinating academic interventions, aligning course selection and work-based learning with student interests, and helping students to choose their pathways and courses. Employing a sufficient number of counselors to ensure that all students have access to counselors and ensuring that counselors are assigned to all pathways are aspects of the effective implementation of the multiple pathways approach.

The *California Standards for the School Counseling Profession*, developed by the California Association of School Counselors, complements the CDE *Guidelines* and provides additional guidance for local districts and schools to evaluate school counselor performance.

Several programs evaluate or recognize excellence in school counseling in California. These programs include the American School Counselors Association's RAMP Awards, the H. B. McDaniels Award from Stanford University, and the Los Angeles County Office of Education's SPARC Award. In addition, the University of San Diego, Center for Student Support Systems, has an action research program that uses outcome-based measures to determine the effectiveness of school counseling programs.

Academic Counseling and Supports

Advisories

High-performing schools provide a range of academic supports for all students. These supports are crucial in effective pathways. Advisories provide students with opportunities to build relationships with adults in the school, creating more personalized learning environments where each student in a school is well known by at least one adult. All students are assigned a teacher or staff member who assists them in achieving their academic and personal goals. Advisories usually include an advisory class as well as individual support. The Education Alliance at Brown University (<http://www.alliance.brown.edu>) and Educators for Social Responsibility (<http://esrnational.org/professional-services/high-school>) are two groups that have extensive resources on establishing advisories.

AVID

Advancement Via Individual Determination (AVID) (<http://www.avidonline.org>) was developed in response to San Diego Unified School District's court-ordered integration of the city's schools. AVID provides a college preparatory program for students who are often economically disadvantaged and underachieving. It enables disadvantaged secondary students to succeed in rigorous curricula, enter mainstream activities in school, and increase their opportunities to enroll in four-year colleges. The state funds 11 regional centers located in county offices of education to provide support and assistance to schools implementing AVID. These services include financial assistance for professional development activities, regional technical assistance and quality control, coaching, special tutor training, mentoring, curriculum, data collection, annual certification, regional academic outreach and Advanced Placement awareness, and student support services. During the 2007–08 school year, California AVID served over 1,000 school sites and about 140,000 students (<http://www.cde.ca.gov/ci/gs/ps/avidsummary.asp>).³¹

Research on the effectiveness of AVID shows that students in the middle grades who participate in AVID have a better chance of succeeding in high school and pursuing higher education. Following is a summary of current research on AVID:

- 95 percent of AVID students are enrolling in college.
- 77 percent are enrolling in four-year colleges and universities.
- 84 percent of AVID students statewide completed the a–g curriculum.
- 98 percent of AVID students graduate from high school.
- 47 percent of AVID eighth graders take algebra.

GEAR UP

Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) (<http://www.castategearup.org>) was created in 1998 as part of the Higher Education Act to give more students the skills and preparation to enter and succeed in postsecondary education. The program's goal is to develop the capacity of middle schools to prepare all students for high school and postsecondary education through the establishment of a statewide support network. Since 1999, California GEAR UP and the 68 partnership projects have impacted over one-third of the 1,200 middle schools in California, with the state grant serving over 236,000 students in 260 schools in 106 school districts and 25 counties. The state model is designed to create a self-sustaining college-going culture by working with whole schools through the adults that have the greatest impact on student life and experience: the principals, teachers, counselors, families, and community leaders.

MESA

The Mathematics, Engineering, Science Achievement (MESA) program (<http://www.ucop.edu/mesa/home.html>) was created in 1970 and is nationally recognized for its innovative and effective

³¹ For more information, see Chapter 8.

academic development program. Administered by the UC, MESA partners with all segments of California higher education as well as K–12 institutions, and it is funded by the state legislature, corporate contributions, and grants. MESA has a proven track record of producing mathematics-based graduates by providing classes, hands-on competitions, counseling, transfer support, and a community environment to students from middle school through four-year college. To the extent possible in California law, MESA emphasizes participation by educationally disadvantaged students from groups with low eligibility rates for four-year institutions. The program has been named one of the most innovative public programs in the country by Innovations in American Government, a project of the Kennedy School of Government at Harvard University and the Ford Foundation.

Puente Project

The Puente Project (<http://www.puente.net>) is co-sponsored by the UC Office of the President and the California Community College Chancellor's Office. The project has improved the college-going rate of tens of thousands of California's educationally underrepresented students. Its mission is to increase the number of educationally disadvantaged students who enroll in four-year colleges and universities, earn college degrees, and return to the community as mentors and leaders. The program is interdisciplinary, with writing, counseling, and mentoring components. Started in 1981 at Chabot Community College in Hayward, the program has expanded to 33 California high schools and 59 community colleges. Puente staff train high school and community college instructors and counselors to implement a program of rigorous instruction, focused academic counseling, and mentoring by community members. Open to all students, Puente's programs currently benefit approximately 14,000 students.

In addition to formal student support programs, pathways can also take advantage of site-based programs, such as intervention classes, supplementary instruction, CAHSEE support programs, and tutoring to ensure that students receive the help they need to succeed in the academic and career domains.

Support for English Learners

Pathways must pay particular attention to meeting the needs of English learners. A curriculum that incorporates both academic education and CTE may be especially relevant to English learners and immigrant students. This curriculum can do the following:

- Provide support for English learners to succeed in both academic and career education courses.
- Provide English learners opportunities to succeed, via vocationally meaningful coursework that does not depend on their language skills.
- Increase immigrant parents' engagement with the school.
- Make classrooms inviting for all students.
- Introduce English learners to a full range of educational and career options and models.
- Help English learners understand community colleges and four-year colleges and universities.

- Provide opportunities for English learners to study the arts and humanities.
- Encourage community colleges, colleges, universities, and other postsecondary education institutions to reach out to communities of English learners (Gandara, 2008).

Project-based learning and cooperative learning strategies in pathway programs can also provide support for students who have not yet mastered English (Gandara, 2008). Support for English learners is a major issue within California high schools, and it is a critical issue to be considered when drafting policies and establishing pathways. The CDE offers a number of programs and information to improve language proficiency of English learners and help them meet State Board of Education-adopted content standards. Examples of these programs include K–12 training for teachers who wish to become authorized to educate English learners, English instruction for adults who pledge to provide personal English-language tutoring to English learners, English-language acquisition, Title III-language instruction for English learners and immigrant students, and resources on two-way immersion.

Support for Struggling Students

In recent years, researchers and policymakers have paid more attention to how high schools meet the needs of struggling learners, particularly in reading, writing, and mathematics.

The National Research Council (NRC) described effective pedagogy in secondary literacy as “personalized relationships, authentic tasks, capitalizing on cultural knowledge, use of multiple resources, rigorous and challenging instruction, explicit instruction, frequent feedback from assessments, and integrated curricula” (Comprehensive School Reform Quality Center, 2005). The NRC description of effective pedagogy in mathematics is similar. This instruction for secondary students should be personally relevant for students; provide access to students’ native language; include authentic, open-ended problems and involvement in mathematics discussions; promote peer collaboration; provide rigorous and challenging instruction with frequent assessment feedback; and provide access to technology (National Research Council and the Institute of Medicine, 2004).

Response to Intervention (RtI) is an approach for gathering student data and using that data to adjust instruction for students who are struggling, focusing on improving student outcomes in the general school setting, as opposed to referring students to special education. A concept with a strong base of over 30 years of research, the term “Response to Intervention” was introduced in 2001 at the U.S. Department of Education, Office of Special Education’s Learning Disabilities Summit (Gresham, 2001).³²

Historically, RtI has been an elementary-level approach; however, it holds promise for high schools. RtI aligns particularly well with the multiple pathways approach, because it involves strategies to provide students with support that gradually intensifies to address students’ needs and instruction that is sufficiently differentiated to ensure that all students succeed with their coursework. RtI requires professional development for high school administrators, teachers, and counselors; changes the culture of the classroom and the role of the teacher; and provides outreach to families and

32 The National Association of State Directors of Special Education sponsored one of the most comprehensive reviews of the research supporting RtI to date. Its 2007 report, *Response to Intervention: Research for Practice*, was conducted to address concerns about the lack of a research base for RtI (Griffiths et al., 2007).

communities (Duffy, 2009). In California, the State Superintendent of Public Instruction established the Response to Instruction and Intervention (RtI²) Initiative, with resources providing guidance to districts and schools. The CDE is working with the county offices of education to assist districts and schools with RtI² implementation.

Long Beach Unified School District has been recognized by both the Broad Foundation and the National Center for Urban School Transformation at San Diego State University as an excellent school district, providing innovative and rigorous instruction. It implements RtI² with high school students, providing regular assessments and tiered interventions that use a battery of eighth-grade assessments to determine the needs of incoming ninth graders. All ninth graders receive core literacy instruction. For those who are six months to two years behind, an additional literacy workshop provides them with support for the core program. Those who are more than two years below grade level are enrolled in a double block of intensive English-language arts or an after-school reading program (Duffy, 2009).

Students performing below grade level should be supported in pathways by a range of services that may include supplemental instruction, intervention classes, tutoring, credit recovery, before-and after-school programs, and academic support programs. To the extent possible, academic support services are provided within the pathways and use the pathway themes to motivate and engage student learning.

Career Guidance and Exploration

Career guidance and exploration are central to the multiple pathways approach. These strategies provide students with access to information and experiences that allow them to envision many possibilities for their lives and to make informed decisions, both while in high school and throughout their careers (CDE & CCCCCO, 2008). This guidance is very important for students in pathway programs, because much of their high school experience will center on a single career theme. Well-designed pathways expose students to a wide variety of occupations, requiring all levels of academic achievement and postsecondary education. Even with broad themes, the choice of a theme necessarily focuses the learning and defines the community of teachers and students over the next three or four years. Students benefit when given the tools to evaluate their experiences against their emerging sense of self, monitor their changing interests, adjust their goals, and sometimes, change direction altogether.

Career exploration and guidance encompass the services that counselors and career guidance staff offer and the career exploration that may occur through classroom-based or work-based activities. Self-knowledge is the core purpose of these activities. It may range from career-related research, informational interviewing, and speakers, to workplace tours, job shadowing, mentoring, and work-based learning. Some schools require students to create educational and career plans.

In addition, students need opportunities to develop essential transferable workplace skills, such as "expert thinking" and "complex communication" skills, flexibility, creativity, teamwork, and basic workplace etiquette (Levy & Murnane, 2005). These skills are also called "habits of mind." They are often best learned through direct experience, including projects, simulations, school-based enterprises, and internships, as well as through the classroom pathway curriculum (CDE & CCCCCO, 2008).

In the multiple pathways approach, it is critical that teachers incorporate and highlight the transferable academic and career technical skills within their curricula, as well as the “habits of mind.” This exposure is important not only to ensure that students can move from one pathway to another if necessary without “getting lost” academically, but to help students better understand themselves and how their skills might be relevant in any number of future careers.

Career Guidance Services

California offers career exploration and development opportunities to students in several ways, and these opportunities have expanded. AB 1802 (2006) has provided support to increase the number of counselors available at the K–12 level, along with a requirement that counselors provide information to students about CTE programs, courses needed for UC/CSU admission, and services to help students pass the CAHSEE. Counselors must document that sessions occurred and whether students have passed the CAHSEE; they are not required to document referrals to CTE programs or academies. Since the requirements of AB 1802 have been suspended until 2013, and districts have more discretion regarding use of the funds, it is unclear whether these counseling services will be maintained. Further, SB 70 (Scott) funds the development of career exploration programs across the state, currently through the 52 CTE Community Collaborative Grants — partnerships between community colleges, ROCs, middle and secondary schools, and others.

Many high schools have career centers that provide materials and services, from career assessment to job search and preparation activities. In addition, many counselors offer career-related support combined with academic counseling. At Petaluma High School, students receive help in charting a career path that is entered into their registration form. In some schools with career academies, such as those in Elk Grove, counselors are assigned to the academies and are integral members of the academy team.

California Partnership Academies, career pathways, and career-focused small learning communities provide experiences that allow students to explore and prepare for the career areas in which they are interested. In addition, some students have access to career exploration and development services through their local WIB youth council, as well as through community-based organizations, such as Girls Inc.

Pathway students should have a multi-year college and career plan that is informed by a range of college and career planning activities; extends through high school; and guides decisions about postsecondary education, training, and career pursuits.

ROCs also provide counseling and guidance in CTE. Some ROCs hire their own counseling staff and provide services themselves. Others contract with participating districts for partial use of school-based counselors, and still others combine ROC and outside services. Since districts have been granted greater flexibility with the use of ROC funding until 2013, again it is unclear whether these counseling services will be maintained.

Local WIBs provide information about jobs and pathways and also oversee One-Stop Business and Career Centers in their communities. The centers provide information, training, and job placement

resources that school districts can use to provide career exploration and preparation opportunities for their high school students.

Career-Related Tools and Resources

The California Career Resource Network (CalCRN)³³ Web site (<http://www.californiacareers.info>) offers various materials, such as planning guides and assessment tools, as well as links to job listing resources, job search preparation guides, and career development information specific to California for many career areas and occupations. With SB 123 (2009), CalCRN, which had been a separate small agency, will be incorporated into the CDE in 2010, enabling closer coordination between career guidance and instructional services.

The primary free online career exploration tool is the California CareerZone (<http://www.cacareerzone.org>), with three assessments that link 900 occupations. Students can generate initial ideas about occupations that match their interests. California Reality Check (<http://www.californiarealitycheck.org>) is an online budgeting activity that allows students to build an adult work/life budget and then connect that budget to potential education level and career choices. The *California Career Planning Guide* is a printed tool that allows students to create a Career Action Plan (also at <http://www.californiacareers.info/ccpg>). The Real Game California™ (<http://www.realgamecalifornia.org>) is a classroom-based curriculum that uses a simulation game to engage students in discovering the importance of education and lifelong learning while they explore potential career options.

Some other tools include:

- *National Career Development Guidelines*, including a national framework of competencies (skills, knowledge, and attitudes), to help people of all ages be self-reliant career managers is available from America's Career Resource Network (<http://cte.ed.gov/acrn/ncdg.htm>).
- The federal government's free online career exploration resource, Career Voyages (<http://www.careervoyages.gov>), provides information on high-growth, in-demand occupations and the skills and education needed to attain those jobs.
- The Roadtrip Nation (<http://www.roadtripnation.com>) contains interviews recorded by college students seeking to discover how others found their passion in life. The CDE is currently partnering with Roadtrip Nation to develop a program designed for students' high school experience.
- California Direct Connect links students and workers to jobs and careers (<http://www.cde.ca.gov/re/dc>).
- WhodoUWant2B CTE marketing campaign is managed by the Academic Senate for California Community Colleges, with support from the Governor's CTE Initiative, including the CDE (<http://www.whodouwant2b.com>). In addition to student-oriented content, this site has ordering information regarding the recently developed CTE/Academic Planning Counselor Toolkit.

33 CalCRN is a state agency funded with state general funds and Perkins funds to provide all persons in California with career development information and resources to enable them to reach their career goals.

- Information on career and college planning is available from <http://www.californiacolleges.edu>.
- Information on labor markets is available from <http://www.labormarketinfo.edd.ca.gov>.
- Information on training and apprenticeships is available from the California Employment Development Department, Labor Market Information Division (<http://www.labormarketinfo.edd.ca.gov>).
- Information on California's regional economies and analysis on economic development opportunity is available from California Department of Labor and Workforce Development's Economic Strategy Panel (<http://www.labor.ca.gov/panel>).
- The California Postsecondary Education Commission's School to Employment Pathways System is at <http://www.cpec.ca.gov/FiscalData/Steps.asp>.

CONCLUSION

A comprehensive counseling program for all students, incorporating both academic and career technical domains, is essential to effectively implement pathways and ensure that more students successfully matriculate through high school.

Although AVID, GEAR UP, MESA, and Puente have shown success in helping disadvantaged students to succeed, these programs reach a relatively small number of students needing assistance. Many students enter high school functioning below grade level, and they need special assistance to catch up and function successfully in high school. Strategies like RtI, which are compatible with the multiple pathways approach, hold promise for helping to improve the learning outcomes for these high school students. A continuing challenge to educators is ensuring that all students acquire the English language and academic skills necessary for colleges and the workplace.

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Chapter 6. School Structure and Time

"If schools intend to help all students learn at high levels, they must redesign their structures in dramatic ways, creating simple, flexible systems in which students and teachers can develop in complex ways."

— Amy Gerstein, former Executive Director of Coalition of Essential Schools

In answer to the question, "What are your three biggest challenges?" more than one California Partnership Academy director responded, "Scheduling! Scheduling! Scheduling!"

INTRODUCTION

The structure of U.S. high school has been much the same for over 100 years. High school was originally designed to prepare a few students for college and to provide others with vocational training. While the world has changed dramatically and today's students need to be prepared for a wide range of evolving educational and career opportunities, the structure of high school and its use of time have not. Developing and expanding the multiple pathways approach in California will require that high schools be organized in new ways.

Many California high schools are large, comprehensive schools enrolling several thousand students. In these schools, a typical student attends six different classes to learn six different subjects with six different teachers with six different sets of rules and expectations. A student can pass through high school without being known well by a teacher, counselor, or other adult and can graduate with minimal preparation for life beyond high school. In addition, many teachers experience their jobs either in isolation from each other or in departmental silos. With the exception of monthly faculty and department meetings, which are often focused on school business, little time is structured to discuss individual students and their work.

Pathways address these issues by offering integrated coursework through smaller environments within high schools. Pathways enable students to know their peers and teachers well, and to be known by a team of teachers. Teachers form a community of learners with their pathway students and assume responsibility for student success. Such pathways can help to create multiple connections for students — with peers and teachers; across content and applications in various disciplines; and among school, the workplace, and the community. Pathways can also help teachers develop common strategies for supporting student success and maintaining closer ties with parents. Pathways can bring rigor, relevance, and relationships to the learning environment, and this chapter addresses reorganization issues, including types of structure, size, time, and scheduling.

A DISTRICT EFFORT

The support of the district central office is crucial to any successful school improvement effort. Effective implementation of the multiple pathways approach requires local district leadership and support. The central office must be responsible for creating the conditions that promote the

implementation of high-quality pathways that employ best practices. District leaders are central to creating a sense of urgency and to building consensus among and partnerships with staff, local business and industry leaders, local postsecondary institutions, and the community.

The multiple pathways approach requires districts to have a comprehensive effort for providing students a choice of pathways. Districts that have implemented the multiple pathways approach have found they need to modify or create new policies, such as their transfer policies to allow students to transfer from one school or pathway to another. Contractual issues related to implementation of pathways and collaboration with the local union are areas for district-level consideration. Some other areas for consideration include providing transportation for students and ensuring that pathways address the needs and aspirations of all students, including students with disabilities, English learners, and students who may need or want to take advantage of adult education options. Above all, district leaders can focus attention on implementing pathways *to improve student learning and achievement*.

The superintendent and other central office staff can take leadership in providing information to all stakeholders and generating stakeholder input and support. District leaders have primary responsibility for engaging community members and parents/guardians in important school improvement efforts, including implementation of the multiple pathways approach.

EFFECTIVE PRACTICE

Practices regarding school structure, pathway structure, and use of time differ in pathway programs from those in traditional high schools. There are trade-offs to consider in any pathway design. Three questions need to be considered:

- How does this change improve teaching and learning?
- How does this change result in students being well known and supported to succeed academically and in other ways?
- How does this change help assure that all students will be prepared for postsecondary education and careers?

School Structures

School structures in the multiple pathways approach can vary. Some schools have just one or two pathways in a traditional high school or charter school; some have "wall-to-wall" pathways, where all students are in a pathway; and some are "single themed, stand-alone schools." Within any of these scenarios, structure shapes the ways in which students and teachers experience school. It is important to consider purpose before deciding on a structure, which raises a wide range of additional questions including:

- How many and what kinds of pathway structures work best for teaching and learning?
- How many pathways work best for the school and community?
- What research base or evidence supports this particular structure?

- How should attention to equity be balanced with student choice to avoid segregating students into homogeneous groups that result when student choice alone determines pathway enrollment?
- How important is personalization of learning to student success?
- Does the proposed structure encourage flexible use of time?
- Does the proposed structure support student participation in work-based learning?
- How would pathway teachers teach differently if they taught the same students for three or four years rather than working with 150 or more new students each year?
- If a team of pathway teachers has more collaboration time, how could they best use it to improve both student and teacher work?
- What would it be like for a team of teachers to take personal responsibility for the learning of just a few hundred students?

Each of the structures described below has advantages and disadvantages, as well as implications.

Pathways Within a Comprehensive High School

For schools with just a few pathways in an otherwise traditional school, students who do not have a clear career interest do not have to select a pathway, and teachers who prefer traditional schedules also have a place. Starting with one or two pathways also enables the school to hone its practice. On the negative side, the pathway staff and teachers can become marginalized or detached from the rest of the school. This situation can be aggravated by the perception that one group is receiving more attention than the rest of the school.

Wall-to-wall pathway structures can foster a sense of common purpose, camaraderie, and equity among faculty and students. On the other hand, a wall-to-wall approach requires that the school select its pathway offerings carefully, with each pathway sufficiently broad in theme and well-designed to offer a rigorous and equitable education to all students. Further, districts must ensure that students have sufficient opportunity for career exploration before selecting a pathway and that parents and students have sufficient information. The district must also make provisions for students to change pathways, if necessary.

Small, Autonomous Schools

Small, stand-alone high schools often focus on a particular career theme. These schools can also feature the elements of a pathway: academic core content, technical core content, work-based learning, support services for students, a focus on postsecondary education and career as mutual goals, and industry and postsecondary partnerships. Single-themed, stand-alone schools (or autonomous schools within a larger campus) provide the advantage of schoolwide purpose and coherence, as well as a "critical mass" for the engagement of employers. Health Professions High School in Sacramento, as well as the Construction Tech Academy and School of Digital Media and Design on the Kearny campus in San Diego are examples. The challenges are that pre-selection career

exploration and family orientations must occur at the middle grades, and students who find they are not interested in the school's theme must either change schools or find other reasons to stay in the school.

PATHWAY STRUCTURES

The U.S. Department of Education defines a small learning community as "an environment in which a core group of teachers and other adults within the school know the needs, interests, and aspirations of each student well, closely monitor his or her progress, and provide the academic and other support he or she needs to succeed" (<http://www.ed.gov/programs/slc/applc.html>). A pathway is one variety of a career-themed small learning community in which students are enrolled in a sequence of CTE courses as well as linked academic classes aligned with this theme.

The essential structure of a pathway is a cohort of students and a cadre of teachers, together in linked academic and career-technical classes during all or part of the school day. In addition, the students have access to integrated work-based-learning opportunities and in-school supports. But within this broad definition, pathways can vary in their thematic or career focus and in their duration, including the grades they encompass, size, scope, organization of courses, and use of time. Pathways may also vary in the extent to which students learn in classrooms, online, in industry or community contexts, and in other dimensions.

Duration and Grade Spans

Pathway programs typically begin in either ninth or tenth grade. ConnectEd: The California Center for College and Career encourages a four-year model beginning in ninth grade, which is the model that most districts participating in ConnectEd's district initiative are implementing. However, many existing models within the multiple pathways approach begin in the tenth grade and span three years.

The four-year span is intended to engage students when they first begin high school, before they have the opportunity to lose interest in school, and to help stem the high dropout rate of students between ninth and tenth grades. The challenge is that middle grades articulation must be tight, so that students are both academically prepared and have some idea of which career area they would be interested in. Given that middle grades students may not be ready to decide about career themes, extra care must be taken to ensure that pathways offer broad transferable knowledge and that students can change pathways (Crabtree & Darche, 1999).

The Long Beach Unified School District (LBUSD) has concentrated on helping eighth grade students, parents, and counselors understand what the ninth grade pathway options are. A fair showcases all of the pathway options, and high school and middle school counselors meet with students and parents to discuss the options. A PowerPoint presentation about the pathways is distributed to all of the middle schools. Additionally, LBUSD has begun implementing the Explore exam, which gives students information about their knowledge, skills, interests, and plans.

The three-year model, commonly found in many districts implementing California Partnership Academy programs, allows students more time to decide which pathway area would be of interest,

and it can be coupled with other means to engage ninth graders and facilitate their transition to tenth grade. A three-year scenario also suggests that a broad array of pathways may need to be offered at a single school. Should students decide at the end of ninth grade that their preferred career area is only addressed in a pathway across town, transportation issues must be addressed.

Some schools have two-year pathways, but in these, offering the full complement of pathway components is difficult. This approach has the advantage, however, of allowing students more time to decide which career areas are of interest.

Pathway Size

Ideally, a pathway is small enough to allow for every student to be well known and for learning to be personalized, but also large enough that the majority of pathway teachers are full-time (or close to full-time) in a single pathway. Pathway size can vary greatly, however. "Small" may mean as few as 30 students or as many as 150 students per grade level.

ConnectEd recommends a pathway size of 300 to 500 students and suggests that if pathways are smaller than that, the staff needs to adequately address scheduling needs (e.g., offering a full range of academic and career technical courses). Some small learning community researchers advocate a size of no more than 400 students (ConnectEd, 2009). Other researchers found that 600 to 900 is the (whole) high school size that correlates with the biggest gains on National Longitudinal Evaluation Study tests, but few studies focus on optimum "school within a school"/pathway size (Lee & Smith, 1997). California Partnership Academies, while they may serve more students, are funded for 90 students in grades ten through twelve.

Depending on the pathway's size, pathway teachers will typically have the same students in their classes for two or more years. Pathway teachers learn each student's strengths and areas for improvement in ways that rarely occur in a larger, more traditional school. Furthermore, based on student enrollment, the larger high schools need to consider the optimum number of pathways that will best allow for scheduling of pathway students and teachers. In a school of 1,000 students, for example, it may be best to convert the school into three distinct ninth through twelfth grade pathways rather than try to offer six or seven smaller pathways that make scheduling far more difficult and involve teachers being assigned to more than one pathway.

Teacher Scheduling

Similarly, a district's or school's priorities may be that all teachers are — to the extent possible — full-time in a single pathway, and that pathway teachers share a common preparation period. While there may be some advantages for a teacher having one course preparation (e.g., World Cultures for five periods a day), it is not possible for a teacher to have the personal investment in the pathway and teaching team needed to support integrated curriculum when the assignment involves teaching World Cultures across three different pathways as opposed to teaching World Cultures and U.S. History full-time and looping with students for two years in a single pathway.

If the degree to which teachers are assigned to work with members of a single pathway team is essential to pathway success, districts and schools need to deliberately create integrated teams of dedicated teachers who work collaboratively with a group of students over time. Schools will need to be vigilant about scheduling pathway students into pathway classes, if pathway classes are to be made up of pathway students only. Beyond that, schools also need to design master schedules to support the scheduling of pathway teaching teams so that teachers have dedicated time to work together to create a culture of shared responsibility and commitment and to improve teaching and learning through integrated projects and other inquiry-based approaches.

Time and Scheduling

In *Block Scheduling: Innovations with Time*, the authors state that “There are many factors that influence what happens in America’s schools, but none is as influential as the use of time. The scheduling of school time dictates how the days, weeks, and years are organized, such that everything we do has a designated time limit. Time determines class schedules, structures the curriculum, influences teaching, and shapes the interactions between teachers and students” (LAB at Brown University, 1998).

The question of whether or not American students spend enough time in school or enough time receiving instruction in core academic subjects has been debated for many years. The 180-day average school year in the United States is 13 days shorter than the international average (Gonzales et al., 2003). American students also spend fewer hours each day in school than most students elsewhere, and American schools allocate less time to core instruction than do other industrialized nations. For example, core academic time in U.S. schools was estimated at 1,460 hours during the four years of high school compared with 3,170 hours in Japan (Stigler & Stevenson, 1991).

“Prisoners of Time,” a study by the National Commission on Time and Learning (1994), revealed the degree to which today’s American school is controlled by the clock and calendar:

- With few exceptions, schools open and close their doors at fixed times in the morning and early afternoon; and the school year lasts nine months, beginning in late summer and ending in late spring.
- According to the National Center for Education Statistics, schools typically offer a six-period day, with about 5.6 hours of classroom time a day.
- No matter how complex or simple the school subject, the schedule assigns each the same national average of 51 minutes per class period, no matter how well or poorly students comprehend the material.
- Secondary school graduation requirements are universally based on seat time.
- Despite the obsession with time, little attention is paid to how it is used.

A key goal — particularly for pathways — is for schools to treat learning as the constant rather than time. Time should be variable, because some students may need longer to master content or a particular skill. The priority should be to use time in ways that provide students with learning

experiences — including work-based-learning experiences — that are meaningful, complex, challenging, and engaging. For this to happen, both state and district policies must support a more flexible use of time that allows districts and schools to extend the school day and the school year. This flexibility is an important consideration for the implementation of the multiple pathways approach. Flexibility in the school day or school year gives districts and schools more options for designing multiple pathways.

The multiple pathways approach requires fundamental changes in the process by which master schedules are developed. Students cannot simply be placed in any available section of a given course. Rather, pathway students are scheduled into pathway-specific course sections along with other students in their "cohort." Likewise, pathway teachers are scheduled so that their classes are "blocked" with those of other teachers in their pathway. There may also be parameters regarding scheduling certain pathway classes at particular times of the day to facilitate the engagement of industry and postsecondary partners in the classroom and of pathway students in off-campus job shadows, internships, social enterprises, or dual enrollment classes.

Pathway teachers likewise need flexibility in scheduling coordination and integration of teaching. Usually, such joint planning comes during common preparation periods. The pathway lead-teacher/director often has an additional non-teaching period to facilitate overall coordination for the pathway, contact and work with industry and postsecondary partners, monitor student attendance and grades, provide additional support for students, oversee integrated projects, complete reports and paperwork, and manage other aspects of the pathway. This additional pathway coordination period needs to be considered in the scheduling process.

Similarly, time for students to participate in internships and other community-based and work-based-learning experiences must be part of the equation when hours in the school day and days in the school year are considered. Even when experiences are based at the school, such as in "social enterprises," students require adequate time to work on their projects. Time for several teachers in each pathway may be extended to enable coordination and link opportunities with classroom curriculum, and to provide internship seminars and dialogue with industry professionals.

Flexibility in scheduling that allows students optimal opportunities to learn and that meets their individual needs is essential for the effective implementation of the multiple pathways approach. Extended time is also needed for students to have opportunities for a well-rounded secondary school experience encompassing academic and career technical coursework, electives that include the performing and visual arts and other subjects, and extra- and intra-curricular activities. Finally, the duration of high school itself may need to be more flexible, including extending high school to five years. More time may be necessary for many more students to complete academic and CTE courses, along with work-based learning. Rethinking what it means to graduate "on time" may provide a more equitable opportunity for English learners, students with disabilities, and those who need more academic support to successfully complete high school. In addition, to be competitive for postsecondary educational opportunities, students face increasing demands to participate in extracurricular activities and community service. Dual and concurrent enrollment programs between high schools and community colleges provide motivation for students to complete their high school

courses and help to prepare them for postsecondary education. Adult education programs can also support students in completing high school beyond the traditional four-year program, if necessary. Several schedules for pathways are described in the sections that follow (WestEd, 2009).

Pathways Implemented Through Traditional Schedules of Six or Seven Periods

In 1906, the Carnegie Foundation decreed that 120 hours in one subject would be the standard time unit to measure credit earned in secondary schools. The Carnegie Unit still exists. Most schools adopted a schedule of classes meeting four or five times a week for 40 to 60 minutes, 36 to 38 weeks a year. This structure reflected the Industrial Age model in which students were sorted according to perceived abilities, and school was not open during the summer so that students could work. Little has changed.

Many high schools use a “traditional” schedule with six or seven periods a day (sometimes eight), each lasting from 45 and 60 minutes. Students usually take six or seven classes; teachers teach five or six, with one preparation/conference period. Schools have experimented with variations in which courses meet at different times during the day, or with schedules in which half the classes meet for longer blocks of time for two days each week, but they all usually incorporate 360 minutes per day.

TABLE 1. How to Implement Pathways in a Six-Period Day

Course Type	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
a	Social Studies		✓ World History	✓ U.S. History	✓ Economics/Govt.
b	English	✓ English	✓ English	✓ English	✓ English
c	Algebra 1	✓ Algebra 1	✓ Geometry	✓ Geometry (adv.)	✓ Algebra 2/ Pre-Calculus
d	Science	✓ Biology	✓ Chemistry	✓ Physics	
e	✓ World Lang. 1 (not all schools)	✓ World Lang. 2			
f			✓ Visual and Performing Arts	✓ Visual and Performing Arts	✓ Visual and Performing Arts
g	Career Exploration/ Life Skills	CTE: Intro. to Engineering	CTE: Principles of Engineering	✓ CTE: Civil Engineering and Architecture	CTE Capstone
PE	PE	PE			PE or Other Elective
Pathway Experiences (built into pathway programs and courses)					
Career Explor.	The Real Game California™/Tours/ Job Shadowing	Tours/Job Shadowing	Counseling/Tours/ Job Shadowing	Counseling/ Reflection/ Planning	Planning/ Transition Support
WBL	Community Project	Community Project	Social/School-based Enterprise	Social/School-based Enterprise	Internship
Ninth and tenth grade support and summer/bridge programs; dual enrollment with community college as necessary. ✓ = Meets a-g requirements					

In pathways, traditional six-period schedules must be carefully designed to enable students to complete both a college preparatory course of study and a full four-year sequence of CTE courses. This schedule can work if electives, remediation, and other coursework beyond those needed to fulfill the requirements of the pathways components are kept to a minimum. The following table presents a sample ninth through twelfth grade schedule of a typical student in a typical district in one pathway.

Pathways Implemented Through Block Schedules

Block scheduling provides students and teachers with fewer classes per day, with each class meeting for a longer period of time to allow more time for teaching. Block schedules can also allow students to take more electives, recover credits, or accelerate learning. As a result, block scheduling provides a flexible approach that has many benefits for pathways.

Block schedules have two common designs. The first is a four by four (4 x 4) semester plan in which students take four courses a term and earn a full year of credit. Students take eight courses in a year. Teachers typically teach three courses each term. A 4 x 4 block scheduling offers students the possibility of graduating with more courses completed, thereby allowing students to meet both a-g course requirements and take a full sequence of CTE courses.

The 4 x 4 can be problematic for Advanced Placement (AP) courses, since students take the exams in the spring, either months after they have finished studying a course or before they have completed the curriculum. Some schools have addressed the need for year-long courses on a block by having students always choose a pair of AP classes during class registration. Thus, courses run all year long on alternate days. Both AP classes last as long as a regularly scheduled block course.

TABLE 2. Sample Basic 4 x 4 Schedule with "Skinny" Courses During the Third Period

First Term	Second Term
Course One	Course Six
Course Two	Course Seven
Course Three ("skinny" class, 45 minutes daily, runs full year)	Course Four ("skinny" class, 45 minutes daily, runs full year)
Course Five	Course Eight

The second common form of block scheduling is the A/B plan. Students take seven or eight courses for the entire year, but courses meet every other day so that teachers meet with only half their students each day. A common variation is having one day a week, usually Monday or Friday, when all classes meet for a shortened time. This schedule gives teachers the opportunity to see all their students on one day each week.

Another variation combines the traditional schedule with a block schedule. For example, a school might have six 50-minute periods on Monday, Wednesday, and Friday and three 100-minute periods on Tuesday and Thursday.

Block Scheduling at James Campbell High School, Ewa Beach, Hawaii

At James Campbell High School in Ewa Beach, Hawaii, the school offers a 4 x 4 block, and each teacher's prep time is the half hour before the first period block begins and the half hour after the fourth period block ends. At least two days a week, the teacher's "non-teaching period" is used for embedded professional development, collaborative meetings, and peer observations. As a result, every teacher participates in almost three hours of professional development every week. The fact that Campbell is demonstrating significant growth in student achievement and in closing the achievement gap is often attributed – by Campbell administrators and teacher-leaders – to this embedded professional development. The savings in the cost of substitutes for professional development, accompanied by larger class sizes and increased student attendance, tends to offset any of the usual added costs associated with block schedules.

(Note: Three of the "non-teaching periods" each week, totaling approximately 261 minutes, are also available for teachers to use as preparation time.)

Proponents of block scheduling believe it is easier to engage students in learning. The longer block of time allows for more in-depth instruction, works well for labs and technical courses, and supports project-based instruction. Other advantages include reduction in time lost between classes; fewer tardies; and more personalized learning because teachers see fewer students each day. However, because students typically enroll in more classes each year (eight instead of six or seven), block scheduling can be more costly in terms of personnel.

Successful block scheduling requires high-quality, rigorous instruction, with strategies that are appropriate for longer class periods. Teachers must have professional development to equip them to teach successfully in the block classes. School reform experts recommend that schools build in at least 50 minutes each week for additional teacher planning and collaboration. Some schools, for example, have a late-start day so that teachers have time for professional development and collaboration.

Pathways Implemented Through Modular or Flexible Schedules

Modular scheduling is similar to what most colleges use, with some classes meeting every day, and some meeting two or three times a week. Class lengths can vary as well. Some schools combine modular scheduling with online learning. They may blend classes of varying lengths that meet two or three times each week with face-to-face seminars that meet weekly or bi-monthly and involve field work, online courses, independent study, and dual enrollment options. Although modular scheduling has been adopted with some success in some high schools, one challenge is that not all students may be scheduled into classes at a given time. Also, scheduling students and teachers is more complex.

The Center for Advanced Research and Technology

The Center for Advanced Research and Technology (CART) in Clovis, California, is a stand-alone facility serving eleventh and twelfth grade students. CART is operated through a joint-powers agreement of the Fresno and Clovis school districts, with the charter currently held by the Clovis Unified School District. Housed in its own 75,000 square foot facility, CART offers students from any high school in both districts the opportunity to enroll in one of 13 to 15 "learning laboratories" that combine advanced academics with hands-on projects and work-based-learning experiences. Operated as a half-day, non-degree granting program, students attend CART three hours per day while remaining officially enrolled at and ultimately graduating from their "home" high school. Staffing and other funding are provided jointly by the school districts; CART also receives ROP funding for selected courses, and some donations from employers.

Pathways Implemented Through Trimester Schedules

Most schools operate on a two-semester schedule (with a few summer school offerings). Some schools with pathways and smaller learning communities prefer a trimester schedule. The number of courses taken and their length can vary. The school year is typically divided into three 12-week terms, and students can take five courses per 60-day trimester and earn a year of credit in two trimesters. Students can usually earn 7.5 credits each year, and the model supports increased pathway CTE courses and other electives. It also allows students to recover credits needed for graduation or to retake a semester of a course to improve their grades. The difficulty is a lack of continuity. For example, a student could take Algebra I during the first trimester and not take the second half of the course until the third trimester.

CURRENT STATUS

Both through broad-based initiatives and local efforts, schools are addressing issues of structure and time. For example, nationally, the Bill & Melinda Gates Foundation and others have promoted small schools, usually with 400 students or less. These schools have tended to be stand-alone, new small schools. In many cases, however, large comprehensive high schools have been converted into multiple smaller schools that share some facilities, such as libraries and gyms, but also have separate authority over curriculum, scheduling, staffing, budget, and other school operations. Other high school redesign initiatives form a community of learners with the same group of students using a "school within a school" approach.

Increasingly, high schools are adopting Middle College High School and Early College High School approaches and are partnering with two- and four-year colleges to offer high school students opportunities to take dual enrollment classes. In some instances, students can graduate from high school having already earned 20 or more units of college credit.

Examples of Several Other Scheduling Approaches

- Schools offer early and late-start options, twilight school, Saturday school, inter-sessions, and summer school to enhance student learning.
- Other schools have shortened summer vacation and add several two- or three-week breaks throughout the extended school year; these breaks can also be used to provide extra support for struggling students or for planning time for pathway teacher teams.
- Some districts have year-round schedules with varying start and end times for different cohorts of students.
- An Oregon school has divided the school day into four 83-minute blocks with a 35-minute activity period at the end of the day. In some of the 83-minute blocks, students may have two 40-minute classes with three minutes for passing. Some of the 40-minute periods meet every day; some meet every other day. Core academic courses are 83 minutes long and meet every other day.
- Another Oregon school offers some of its courses as online classes with students meeting face-to-face with the teacher in a seminar once a week, but completing other aspects of the course online or in field placements. This innovation offers students access to advanced or specialized coursework that would not otherwise be available at their school, opportunities for credit recovery or to make up poor grades, more flexibility in structuring their school day, or a more challenging summer or after-school learning experience.

The Mott Foundation has supported extended learning through after-school programs, including Saturday school or twilight school³⁴ for credit recovery and dual enrollment opportunities.

California has close to 500 career academies in which sophomore and junior students and their teachers spend at least half of each day in a block of interdisciplinary classes (three or four core academic classes and one CTE class). The number of academy courses offered in grade twelve varies and typically includes one or two core academic classes and one CTE class.

California is also examining its facilities planning to better align “form and function” — that is, to ensure that school design enables engagement, personalization, “connectivity,” and “authenticity” in learning, as well as provides shared use of space with communities, and access to community-based and work-based-learning opportunities (CDE, 2008).

³⁴ The twilight school is an alternative educational program associated with the regular comprehensive school. The program helps the school district better meet the needs of students who are having difficulty adjusting to school or controlling their behavior. The term “twilight” refers to the modified time and instructional circumstances necessary to accommodate student learning, and not necessarily to the time of day (<http://www.richmond-heights.k12.oh.us/HS/Twilight%20School.htm>).

At innovative schools, such as the Big Picture Schools in Oakland, Sacramento, and San Diego; Envision Schools in Hayward, Oakland, and San Francisco; and High Tech Highs in San Diego, students work with teachers to develop standards-based learning plans for their internships, and these internships often occur during part of the school week.

Some Emerging Practices

- At Luther Burbank High School in Sacramento, each of the ninth through twelfth grade career academies operates as a semi-autonomous “school-within-the-school” that schedules its own students. The school offers some “universal” classes, such as band or Advanced Placement, but all other courses -- including a sequence of CTE courses related to each academy theme -- are part of each academy’s program of study.
- At Life Academy, a small school focused on health and bioscience in Oakland, school begins in August, and the first semester ends in December. The second semester begins in early January and ends in mid-May. The school adds an innovative session in which every student takes a single course over a month-long period. Ending the first term in December allows the school’s predominantly Mexican-American student population to visit family in Mexico over the winter holidays. Tacking on an extra course at the end of the year provides teachers and students the opportunity for an in-depth learning experience or for credit recovery.
- At Envision Schools, “early release” Wednesdays allow all students to participate in weekly work-based and community-based learning experiences, and all teachers to collaborate in extended professional development and pathway coordination.

Six districts (Antioch, Long Beach, Pasadena, Porterville, Sacramento, and West Contra Costa) are funded by The James Irvine Foundation to work with ConnectEd to develop high-quality pathways and, simultaneously, to continue their work to develop districtwide systems of pathways. Five other districts are working with ConnectEd to plan for systemwide implementation of the multiple pathway approach, and other districts have expressed interest.

In most of the above examples, a team of interdisciplinary teachers, including one or more CTE teachers, shares collaboration time. Ideally, where pathway classes are “purely” scheduled and “blocked” so that the entire team of teachers and students are together in closely linked classes for substantial time each day (or every other day), pathway teachers team teach; engage students in longer, more complex labs or projects for several hours at a time; and adapt the daily schedule to regroup students for personalized instruction, exhibitions of work, work with pathway partners, internships, or pathway events.

CHALLENGES

The multiple pathway approach requires new responsibilities for teachers, including integrating their curriculum with other teachers on their team, working to engage industry partners in their

classrooms, and helping support mentoring and internship programs for pathway students. If pathways are to be effective, teachers need more time to know their students well, plan, focus on quality student and teacher work, and meet the responsibilities of both a classroom teacher and a pathway team member. Structures and schedules need to allow for the creation of environments in which each student is known by – and has the support of – at least one adult in the school, and in which students and teachers are together in integrated pathways/learning communities for all or much of the school day. Teachers need time to coordinate and plan, and students need time to complete seven or eight courses each year. The following key challenges exist.

Lack of Flexibility

While block scheduling in pathways promotes collaboration among teachers and staff and personalization for students, longstanding bureaucratic structures, regulations, and policies support traditional structures and uses of time. For example, testing for both AP and No Child Left Behind (NCLB) reinforces traditional schedules because students in block schedules often take courses aligned with these tests in the fall, and the tests are given in the spring. If testing could be offered at multiple times during the year, schools would have greater scheduling flexibility. In addition, traditional departmentalization competes with cross-disciplinary collaboration, and it extends to facilities, where classrooms are clustered by discipline. Schools and districts need funding and support to provide flexibility in scheduling and the use of time for pathway students and teachers.

Impact of Fiscal Crisis

Decisions about structure and time often are based not on what research and promising practices regard as best for students, but on cost savings alone. For example, the current fiscal crisis has forced some schools and districts to curtail innovations in the use of structure and time. In Petaluma, Mount Diablo, and many other districts, summer school was eliminated or severely curtailed. In San Lorenzo and Hayward Unified School Districts and elsewhere, as a cost saving measure, high schools were required to move away from a 4 x 4 block schedule. Previously, students had the possibility of graduating with 32 courses; now the typical student can only complete 24 courses and has more limited opportunity to complete all a-g requirements and to complete a full CTE sequence.

Six-Period Day

As more high schools revert to a six-period day to save money, as the option of summer school is limited – especially in low-income communities – and as graduation requirements increase, it becomes more difficult to implement a fully developed pathway program in which students have access to a CTE class each year. Challenges to implementing pathways in a six-period day include the following:

District graduation requirements. The student course sequence does not allow for other courses that are often required of all students, such as a Freshmen Focus class (semester), required health class (semester), required computer class (semester), or required ethnic studies class.

Student support and academic enrichment classes. Current strategies for addressing the needs of students requiring extra support may challenge students' ability to complete all required components of a pathway. For example, it may be difficult to include the following classes:

- Required intervention courses in English and/or mathematics for students who are not yet proficient in these subjects. The practice of "double dosing" students who are not yet proficient in English and mathematics is common.
- Additional required courses for English learners who often must complete English-language program requirements before taking the regular college-preparatory English classes.
- CAHSEE courses that some schools require in preparation for the CAHSEE or for students who have not yet passed the CAHSEE.
- Any AVID classes, which enhance study skills and provide support for students to succeed in more challenging courses.
- Credit recovery classes or repeated classes for students who earned Ds or Fs the first time they took the courses. Many districts no longer offer summer school or severely limit access to summer school.
- AP or International Baccalaureate classes. Though these usually take the place of other college preparatory classes, there may not be a sufficient number of students in a given pathway who qualify to take these courses to make up a pathway class; if students take the courses outside the pathway, it may compromise the integrity of the cohort.

Other electives. There may not be as much room in students' schedules for courses such as student leadership, band, yearbook, journalism, drama, speech, computers, or other electives important to many students and also important in the college application process.

Other college entrance requirements. Almost all students begin their studies of foreign language in middle grades and may need to complete at least three years of a foreign language to qualify for their college or university of choice. In addition, the UC Office of the President is now requiring that students have completed 11 of their a-g required courses by the end of their junior year, which makes it harder for students to take additional elective classes, including CTE classes, until they meet this UC requirement.

Further, the solution to the scheduling challenge of the six-period day is not as simple as going to a seven-period day and having teachers teach six out of seven periods, because adding a period adds tremendously to the teacher workload.

Facilities

The issue of facilities design is related to the issue of cost. According to Fuller, "Concentrating students into larger school plants and using a factory model to attempt to educate more students at lower expense produced the 'one best system' concept in education, which does not engage students well today" (CDE, 2008). The resulting financing model constrains creativity in designing schools that promote distance learning, independent study, project based learning, and cooperative

joint use opportunities, among other strategies essential to twenty-first century schools (CDE, 2008). California's facilities funding policies have fostered the development of large comprehensive high schools and actually give priority to the factory model. There is an immediate need to rethink these policies and priorities to encourage districts to incorporate smaller schools and smaller groupings of students within existing high schools and any new schools that are developed and built. For example, financial incentives could be offered to districts to build smaller schools, with regulations that would set limits for the number of students to be served by any one school. In addition, districts could be provided financial incentives that would promote leveraging community resources and for encouraging the location of community services within the schools. The engagement of the community, through partnerships with the district, is critical for increasing the options for implementing pathways throughout a district.

Limited Online Learning Opportunities

UC approves limited online offerings to meet a-g requirements. Currently, only Education Programs for Gifted Youth at Stanford, National University Virtual High School, PASS/Cyber High School, and UC College Prep have UC-approved online courses (<http://ucop.edu/doorways>). Also, accredited online courses usually involve costs to students, parents, and schools and districts. As a result, far fewer online learning opportunities are available for low-income students. However, access to some online courses is beginning to improve. For example, UC College Prep publishes free online content and makes UC-approved AP and college preparation courses freely available (Watson et al., 2008).

Rural and Small Districts

Rural and small districts in California are particularly challenged to implement the multiple pathway approach. In California, while rural students are large in number, they constitute a small percentage of students overall. They are diverse, with one in five designated as an English learner (Johnson & Strange, 2007). The challenges include:

- Small district size, especially for districts of 500 to 600 students.
- Distances and transportation between schools in rural areas.
- Limitations in the number of sections that can be allocated.
- Limitations in offering mathematics, science, and special education classes.
- Limited options for industry partnerships. Many rural areas do not have a large industry base. For example, Lake County has a population of 60,000, with no large employers other than government agencies and small hospitals with 20 beds.
- Limited options for exposing students to different careers.
- Limited funding.

CONCLUSION

Developing and expanding the multiple pathways approach in California will require that high schools be designed and organized in new ways. The structure and size of California's high schools, moving away from the large, comprehensive high schools, leveraging community resources, promoting more flexibility in lengthening the school day and school year, and engaging stakeholders will accommodate a wide range of evolving educational and career opportunities for all students.

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Chapter 7. Middle Grades Alignment

INTRODUCTION

Data show that “fewer than two in ten eighth graders are on target to be ready for college-level work by the time they graduate from high school” (ACT, 2008). These statistics speak to the great need to improve the number of students who enter high school fully prepared to succeed in their coursework. This problem – ensuring that middle grades students are on target for rigorous high school courses – has been referred to as the “forgotten middle” and the “weak link” (Southern Regional Education Board, 2003). This weak link – the transition into high school – is one of the most critical issues of alignment between middle grades and high school (Herlihy, 2007). Students’ successful transition into high school academic and career technical courses is fundamental to the implementation of the multiple pathways approach. This chapter addresses the importance of transition programs for student success in high school, as well as the importance of strong articulation and alignment between the middle grades and high school in all curricular areas, including career exploration.

THE ISSUE OF TRANSITION

Students’ experiences in the ninth grade have been shown to determine their success throughout high school and beyond, yet more students fail ninth grade than any other grade (National High School Center [NHSC], 2007). For students with inadequate academic preparation for high school, the transition into high school represents a formidable challenge and is one of the key factors in the escalating dropout problem (Neild, 2009). Various research studies have demonstrated that significant numbers of students drop out in ninth grade. For example, nationally 40 percent of the dropouts in low-income schools are ninth graders (EPE Research Center, 2006). Researchers at the Harvard Civil Rights Project in Los Angeles found that most of the students who do not finish high school leave between grades nine and ten (Harvard Civil Rights Project 2005). A recent WestEd study of high school student reenrollment in San Bernadino found that “The enrollment data show that the majority (59.7 percent) of reenrollees dropped out in their first year of high school and that close to half (47.2 percent) returned to school for only one year, earning few course credits” (Berliner, Barrat, Fong, & Shirk, 2010). These statistics are consistent with those from a national study that in cities with the highest dropout rates, 40 percent of ninth grade students repeat the ninth grade, but only 15 to 20 percent of those repeaters go on to graduate (Balfanz & Letgers, 2004). High-quality pathways provide strong support for middle grades students to transition successfully into high school, making it possible for more students to successfully negotiate ninth grade.

A number of resources are available to assist districts with establishing classes and programs to help middle grades students successfully transition into high school. These resources would also be valuable for designing high-quality pathways. For example, the NHSC has developed a checklist of

research-based strategies that can help states support districts and schools in improving student transitions into high school (Herlihy, 2007):

- Identify readiness indicators for high school coursework.
- Require districts and schools to report annually the percentage of students completing algebra and freshman English by the end of freshman year.
- Track whether schools are offering more rigorous courses to more ninth graders each year.
- Communicate to families what ninth graders are expected to know and be able to do to succeed in high school.
- Require one-on-one planning sessions for all students and their parents.
- Require high schools to inform middle grades feeder schools of the percentage of students who completed two years of college-prep English, mathematics, and science by the end of tenth grade.
- Provide guidelines on how middle and high schools can work together to prepare students for high school.
- Require and fund high schools to identify eighth graders who are not ready to take college-prep English and mathematics in ninth grade and provide summer school programs in these areas.
- Provide guidance on how to offer double doses of catch-up courses, when necessary —courses that are designed to help students meet the demands of more rigorous high school work, specifically algebra and English — in the first semester of high school and enroll them in high school work by the second semester.
- Require districts to report on the outcomes of their transition programs.

In addition, the NHSC developed another checklist to assist states in implementing a comprehensive approach to leverage system change for high school improvement (NHSC, 2007). These checklists may be helpful for California as it considers implementing the multiple pathways approach in the context of improving high school students' outcomes.

Transition Courses

In recognition of the challenge presented by transition into high school, some districts and schools offer students transition courses. Transition classes are specifically designed to ensure that middle grades students can successfully undertake rigorous high school courses. The Freshman Transition Initiative (FTI) (<http://www.freshmantransition.org>) addresses the critical need for a classroom-based, comprehensive guidance effort, in either the eighth or ninth grade, to prepare students for success in college and career exploration. The FTI course standards outline a rigorous, research-based transition course for all eighth or ninth grade students. These standards, endorsed by the National Association for Secondary School Principals, provide a resource for administrators and teachers to use in designing courses for pathways to help students make academic and career exploration choices that will help them to successfully navigate the transition into postsecondary education, training, or careers.

Specifically, the FTI course standards state that transition courses focusing on educational achievement must:

- Facilitate students' recognition of the value of education and internal motivation to succeed in school.
- Motivate learners to challenge themselves and strive for higher achievement.
- Help students understand how education, training, and career choice impact their personal lifestyles.
- Motivate students to apply themselves; once they understand how core subjects and skills, such as reading, writing, speaking, and computing, impact their future success, their academic achievement will improve.

The FTI course standards provide a blueprint for well-designed freshman courses that have the same rigor, credibility, and status of traditional academic courses, but that also increase school retention, academic achievement, and postsecondary matriculation. In effective pathways, counselors and teachers work together to develop effective courses or programs that help students transition into high school successfully. These programs should address academic expectations and career exploration, along with behavioral expectations that are communicated to students and their families (CDE, February 2008).

According to ACT's report, "Making sure that all eighth grade students have attained the knowledge and skills that put them on target to becoming ready for college and career is the single most important step that can be taken to improve their college and career readiness" (ACT, 2008). ACT's recommendations include:

- Focus K-8 standards on the knowledge and skills that are essential for college and career readiness, and make these nonnegotiable for all students.
- Monitor student progress in becoming ready for college and career, and intervene with students who are not on track to becoming ready, beginning in upper elementary school and continuing through middle school.
- Improve student academic behaviors.
- Increase federal and state support for schools to implement intervention programs that help all students become ready for college and careers (ACT, 2008).

The California Department of Education's 12 Recommendations to Middle Grades Success states that "continuous progress monitoring helps middle grades teachers see when students are not on track to meet high school standards." Early, accelerated interventions help ensure that struggling students have a chance to catch up, increasing their chances of staying in school through ninth grade and beyond. School counselors in the middle grades are critical and can take leadership in helping to ensure that middle grades students have the support they need to succeed. Currently, a large and disproportionately poor and minority group of students tend to drop out in ninth grade. Early, intensive preparation of those students may help to close the achievement gap (<http://pubs.cde.ca.gov/tcsii/recsforsuccess/recsforsuccessindx.aspx>).

Middle Grades and High School Articulation

Middle grades and high schools working together increase the likelihood that all students graduate from high school ready for postsecondary education and careers. The role of the middle grades in preparing students with the knowledge, skills, and abilities necessary to succeed in high school cannot be overlooked. For example, middle grades counselors can take leadership in helping students to develop personalized learning plans that identify the high schools that will best meet their individual needs and goals. Middle and high schools working together can make sure that the necessary supports for struggling students are in place and effective. The district plays a key role in alignment, including identifying key curriculum standards; adopting common curriculum, assessments and pacing guides; and providing data (Springboard, 2007).

California has many non-unified districts, and while alignment may be more difficult across non-unified districts, it is not impossible. To ensure strong articulation and alignment, middle schools may develop articulation agreements with their destination high schools. Ultimately, strong alignment between middle grades and high schools is a requirement for effective implementation of the multiple pathways approach, as students must enter high school prepared to take full advantage of rigorous academic and career technical courses.

Career Guidance and Exploration in Middle Grades

Alignment between the middle grades and high school is also important in career guidance and exploration. For unified school districts that maintain grades seven to twelve, California *Education Code* Section 51228(b) requires local school boards to offer students in those grades a course of study that provides an opportunity to attain entry-level employment skills in business or industry upon graduation from high school. Counselors and teachers must collaborate on developing the courses and articulation agreements that are central for providing these opportunities to students for middle schools that serve multiple destination high schools within or across districts.

Career guidance for middle grades students is critical to high-quality pathways implementation, particularly if the pathways are organized to begin in the ninth grade. Generally, four types of career exposure and exploration activities are appropriate for middle grades students: 1) in-class projects that integrate curriculum with the kinds of problems that students might find outside the classroom or that are set in the context of the world outside of school; 2) in-class career exploration curriculum games or activities, such as The Real Game California™, that allow students to explore options; 3) exposure to careers first hand through speakers, field trips, and job shadowing; and 4) reflection, guidance, and the beginnings of planning, facilitated by a guidance professional, resulting in educational and career plans that are revised over time.

Even if pathway enrollment does not begin until tenth grade, middle grades students should be engaged in career exploration activities, since the choice of a high school may limit their pathway selection. Working with teachers, middle grades counselors play an important role in career exploration.

Middle grades students should be engaged in open-ended exploration and hands-on activities that articulate with area high school CTE programs. It is also important to document the student's career exploration experiences, the options explored by the student, and the student's preliminary interests; and to make this information available to both middle grades and high school counselors to ensure continuity from one level to the next. Courses like the Gateway to Technology from Project Lead the Way³⁵ or Exploring Technology³⁶ are examples of career exploration courses that are specifically designed for the middle grades.

Districts should consider requiring a career development plan for their students starting in the seventh grade. Parent involvement in this exploration and "planning" process is a critical component for the multiple pathways approach. In addition, successful transition of middle grades students depends in part on how effective counselors are with engaging parents of these students.

In Long Beach, all eighth grade students take the ACT Explore Test, which gives them a profile of their career interests. Students in the Woodland Joint Unified School District have access to The Real Game California™ and the California Career Zone, an online career exploration tool.

Middle schools can provide students with orientations, including such things as school fairs, tours, and presentations, about the options available in high school. In Porterville, for example, two-week student projects in middle grades introduce pathways to students. In addition, a summer camp further introduces students to high school programs. High school mentors can also introduce middle grades students to options in their high schools.

CHALLENGES

Challenges for Middle Grades Transition

States, districts, and schools need to address several key challenges to support ninth grade transitions between middle and high school. According to the NHSC, these challenges include the lack of data and monitoring systems to determine why students are struggling and how to hold districts and schools accountable; addressing the needs of students ill-prepared for high school; personalizing the learning environment; building the capacity of district and school staff in low-performing schools; and creating connections among schools and communities, industry and business, and postsecondary institutions. Some state initiatives hold promise for addressing these challenges (Herlihy & Kennelly, 2007):

- The Data Quality Campaign, a national collaborative, developed guidelines for states that will help create systems to provide data to diagnose transition problems and hold schools

35 The Gateway to Technology (GTT) program is divided into five independent, nine-week courses developed for grades six through eight. GTT is taught in conjunction with a rigorous academic curriculum and is designed to challenge and engage students (<http://www.pltw.org/Engineering/Curriculum/Curriculum-middle-school.cfm>).

36 Exploring Technology is a comprehensive educational program for middle schools addressing the ways that people use communication, manufacturing, transportation, and construction to adapt to their environment. Content and activities involve students' use of tools, materials, and processes (<http://www.iteaconnect.org/EbD/Samples/MiddleSchool/ExploringTech.htm>).

and districts accountable for student outcomes related to transition to high school from middle grades.

- Virginia's Algebra Readiness Initiative provides an example of how states can address the diverse instructional needs of students coming into high school.
- Georgia has implemented an initiative to put a graduation coach in every public high school to work with students in grades eight through twelve who are at risk of dropping out.
- California's Assumption Program of Loans for Education is an example of a state response to building capacity in low-performing schools.
- The Career Guidance Model from South Carolina builds stronger connections between schools, business and industry, communities, and postsecondary institutions. The program assists students, parents, school districts, and communities to engage in career awareness at the elementary level, and career exploration in middle grades and high school.

Challenges to Middle Grades Career Exploration and Transition

Middle grades counselors and teachers are challenged to maintain a delicate balance of helping students understand what career options exist and where their interests lie, without asking them to make decisions about specific careers too early. For this reason, helping students understand the transferability of skills is important.

This challenge is exacerbated because career exploration opportunities may be limited for middle grades students who face academic challenges. The focus on high-stakes testing and remediation takes time away from students' schedules, limiting opportunities for participation in career-related courses or activities (CDE & CCCCCO, 2008; WestEd, 2007). This challenge is particularly true for diverse students, English learners, and socioeconomically disadvantaged students, since they are disproportionately in schools with low test scores and are subsequently enrolled in extra periods of reading and mathematics. Although providing middle grades and high school students with instruction that emphasizes the basic skills within a career-related context is more effective, it is a challenge for administrators to champion this type of instruction.

CONCLUSION

Middle grades must prepare students to successfully transition into high school. Middle grades counselors can play an important role in developing students' individual learning plans and with promoting career-related activities in middle grades classes and after-school programs. Improving middle grades education is central to effective implementation of pathways at the high school level and requires strong vertical alignment between high schools and middle grades in both academic and career technical education. It is especially important to start career exploration activities in the middle grades to help students understand their future options and make wise selections of pathways, particularly in an environment where pathways may begin as early as ninth grade.

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Chapter 8. Postsecondary Linkages

"You feel a push to excel in everything that you do. And you're more encouraged to ... continue education after high school... And you know that there's always going to be someone back here at high school who you can go to, your teachers, because you become like a family. We're all connected."

— Student, Health Academy

INTRODUCTION

The ultimate goal of the multiple pathways approach is to prepare high school students for careers and for a full range of postsecondary options. Postsecondary education as discussed here includes any form of education or training beyond high school provided by community colleges, colleges, or universities; vocational, technical or professional schools; and military training. The multiple pathways approach seeks to improve postsecondary readiness by engaging and motivating all students to maximize their educational and career potential.

To prepare students for postsecondary success, collaboration between secondary and postsecondary institutions is essential. Much of the research conducted on the expectation gaps between high school and postsecondary education has focused on traditional academic disciplines. This chapter examines coordination and articulation between high schools and postsecondary institutions given the work currently under way in California to develop and implement pathways.

EFFECTIVE PRACTICE

Pathways seek to improve student readiness for all postsecondary educational opportunities. This effort includes, at a minimum, providing all students with access to and encouragement to participate in a rigorous, integrated curriculum, work-based-learning opportunities, and support systems that will prepare students for success in community colleges, four-year institutions, or other educational and training programs — without remediation. Conley has written extensively about preparing students for postsecondary education; the following four principles for such preparation are drawn from his research (Conley, 2008):

Principle 1: Create and Maintain a Postsecondary Culture. High schools with a postsecondary culture project the belief that all students can succeed in some form of postsecondary educational opportunities. For example, many schools that Conley studied automatically enrolled students in a program of study designed to prepare them for postsecondary education, posted postsecondary acceptance letters prominently, held award ceremonies focused on students' accomplishments, and recognized students who had been accepted to postsecondary education.

Principle 2: Align the Core Academic Program with Postsecondary Readiness Standards.

Schools design their curriculum to prepare students for postsecondary readiness and advanced placement courses; they align course expectations, assignments, goals, and activities vertically across grades 9–12, using a set of readiness standards as the reference point.

Principle 3: Teach Key Self-Management Skills. Schools design strategies to help students improve their study skills; collect, organize, and retain factual information; take better notes; manage their time more effectively; work in teams; and reflect on the quality of their work and self-assess their performance.

Principle 4: Prepare Students for the Complexity of Applying to Postsecondary Education.

Schools provide postsecondary information to first-generation students repeatedly and systematically during all four years of high school. Some schools require all students to take readiness tests, and advisors help students interpret and use the results to improve their preparation for postsecondary opportunities. Many schools provide students and parents with information about financial aid.³⁷

In addition, high school programs should offer a wide range of work-based-learning opportunities and career technical courses, as well as academic courses, to provide all students with the skills they need to learn about and pursue postsecondary options. Preparation programs should inform students about certificate, associate, and baccalaureate programs and the programs' readiness requirements. Pathways seek to provide these wide-ranging opportunities for postsecondary preparation (Gray & Herr, 2000).

The guide, *Helping Students Navigate the Path to College: What High Schools Can Do*, looks at effectiveness for various strategies related to improving rates of student attendance at postsecondary institutions (National Center for Education Evaluation & The Institute of Education Sciences, 2009). The guide makes five recommendations:

- Offer courses and curricula that prepare students for credit-bearing courses at postsecondary institutions and ensure that students understand what constitutes a postsecondary curriculum by ninth grade.
- Utilize assessments throughout high school so that students are aware of how prepared they are for postsecondary education and assist them in overcoming deficiencies.
- Surround students with adults and peers who build and support students' postsecondary aspirations.
- Engage and assist students in completing critical steps for postsecondary entry.
- Increase families' financial awareness and help students apply for financial aid.

37 California has developed an interactive Web site (<http://www.californiacolleges.edu>), which can assist students and parents in exploring colleges and careers, planning and paying for college, and the college admissions process.

Rubrics developed by ConnectEd and others (for example, the National Career Academy Coalition) include the following key characteristics for improving readiness for postsecondary education in pathways:

- Formal partnerships that articulate the pathways with local public and private postsecondary institutions, including training programs and apprenticeships
- Articulation that incorporates concurrent enrollment options and allows students to earn substantial postsecondary credit for pathway completion
- Guidance counseling that includes career awareness, career interest surveys, industry-relevant field trips, and visits to postsecondary institutions
- Academic counseling while in high school that ensures that students are making progress toward meeting course requirements for postsecondary success
- Assistance with the processes for completing applications for postsecondary institutions, fulfilling testing requirements, and applying for financial aid
- Formal follow-ups with students for at least four years after high school graduation
- The continuous use of data to improve the program (ConnectEd, 2008; Kirst & Venezia, 2004)

CURRENT STATUS

A number of strategies exist to facilitate postsecondary transitions so that students have multiple options to continue their education beyond high school.³⁸ These strategies are important for students in pathways, given the focus on completing both rigorous academic courses and rigorous career technical courses, as well as work-based learning, with the explicit aim of having a full range of options upon high school graduation.

College Credit–Earning Opportunities and Pathways

One way to establish postsecondary linkages is to provide extensive opportunities for a wide range of students to earn postsecondary credits while in high school. Traditionally, concurrent enrollment has been a way for high-achieving high school students to earn college credit. Recently, however, comprehensive concurrent enrollment programs have included a broader range of students. This approach is more structured than the traditional model and is developed through strong partnerships between high schools and local postsecondary institutions. These options can motivate students when they realize they can succeed in college and can save money by earning credits while in high school.

California's high schools and postsecondary institutions partner in many ways to offer concurrent enrollment options for students. These options include Tech Prep; ROCP; California Partnership Academies; 2+2 articulation agreements; credit by exam; and "piecemeal" concurrent enrollment course offerings (one course at a time with no surrounding supports). Early College Schools and Middle College High Schools are comprehensive concurrent enrollment models, often located on

³⁸ For more information, see Chapter 5.

college campuses, which provide a high school curriculum that includes college courses prior to graduation (Hughes, 2008). Efforts range from those that are historically identified with vocational education, or now with CTE, and those that are more traditionally academic. These efforts may, or may not, include the creation of formal pathways. The Concurrent Courses Initiative, funded by The James Irvine Foundation, is making important headway in the field's knowledge of effective practice. However, no statewide documentation of the multiple pathways approach includes concurrent enrollment or other transition strategies, so it is impossible to determine the extent to which pathways are successfully using these approaches to facilitate postsecondary enrollment.

There has been no statewide documentation of the use of concurrent enrollment or other transition strategies specifically within the context of implementing pathways in the multiple pathways approach. However, previous research on concurrent enrollment has identified the following components of exemplary, comprehensive dual enrollment programs supporting underserved populations that could apply to the multiple pathways approach as well:

- All high school students and their parents receive information and opportunities to plan for dual enrollment.
- Participating students are provided with an aligned, scaffolded sequence of rigorous high school coursework leading to capstone college courses (earning high school and college credit), with consistent and jointly established eligibility for college courses.
- The college courses, taught on high school or college campuses, focus on core instructional areas.
- Support services accompany coursework.
- Mechanisms exist to monitor and assess the quality of courses offered and the program's effectiveness.
- Partnerships between high schools and colleges clearly define the roles of the respective institutions through memoranda of understanding (Kirst, Venezia, & Nodine, 2009).

In addition, early lessons from the Concurrent Courses Initiative and related efforts, such as the SB 70 Career Advancement Academies, suggest that underserved students need significant support services, including transportation, tutorials, assistance with textbook purchases, and case management. Ensuring that students receive these services requires careful coordination among partner organizations.³⁹

A–G Issues

Another mechanism to ensure that California high school students have access to the state's four-year university system is the use of a–g requirements. Pathways are designed to make full a–g course sequences available to their students to maximize students' prospects for completing these courses and having the option to attend a four-year university should they choose to do so.

³⁹ Input provided by public forum participant on January 12, 2010.

Although the UC campuses use a wide range of criteria when assessing applications, the requirement for passing a-g courses is the primary signal that prospective students currently receive about readiness for four-year, public postsecondary institutions in California. However, using a-g requirements in this way is not without controversy, as is evidenced by the recent unsuccessful statewide effort to require a-g as the default curricula for high school graduation, and the successful adoption of it as district-level policy in places such as Los Angeles and San Jose. In addition, the current completion of a-g curricula varies substantially by ethnicity, which has broad implications for equity. For high school graduates, 40 percent of white students and 58 percent of Asian students complete the a-g curriculum, compared to only 25 percent of African American and 22 percent of Latino students. Of the students who start ninth grade (including students who later drop out of high school), only 14 percent of African American and 12 percent of Latino students complete a-g requirements.

Concerns about the skills students will need for future success, the needs of the workplace in a rapidly changing economy, and the achievement gap have combined to spotlight the importance of providing all students with skills and experiences that will prepare them for a full range of postsecondary and career options. However, perceived policy barriers and restrictions in traditional high school scheduling have made the fulfillment of this goal challenging, prompting trade-offs for schools and students, and creating tensions between CTE and a-g. Efforts are under way to resolve concerns that students who take an applied course sequence cannot be eligible for the UC or CSU, and that students who complete the a-g sequence will have no room in their schedule for CTE courses. The multiple pathways approach works to relieve that tension by providing pathways that combine CTE and a-g curricula.

High School A-G Requirements for UC

- a – History/Social Science – 2 years required
- b – English – 4 years required
- c – Mathematics – 3 years required, 4 years recommended
- d – Laboratory Science – 2 years required, 3 years recommended
- e – Language Other Than English – 2 years required, 3 years recommended
- f – Visual and Performing Arts– 1 year required
- g – College-Preparatory Electives – 1 year required

(http://www.universityofcalifornia.edu/admissions/undergrad_adm/paths_to_adm/freshman/subject_reqs.html)

The 7,650 CTE courses that the UC has approved for a-g, represent more than 25 percent of the total number of CTE courses statewide. Although an additional 920 ROCP courses have been UC approved, most CTE courses are still not eligible for UC approval, and very few are in core areas, such as English, mathematics, and history/social science. This situation has to do with the UC requirements for approval: “Courses must fall within one of the a-g subject areas, must be

academically challenging, must prepare students for success in lower division courses at UC, and must meet the specific subject area guidelines articulated by the faculty" (http://www.ucop.edu/a-gGuide/ag/cte/cte_faqs.html).

The UC has, on average, approved approximately 900 CTE courses per year since 2007–08. Through the UC Curriculum Integration Project, UC's goal is to have 10,000 CTE courses approved by the end of the 2011–12 school year. The UC and CSU are developing a UC Curriculum Institute to train teachers and develop courses for a-g approval. The CDE and UC are currently reviewing different proposals that would qualify more CTE courses to meet UC a-g requirements for statewide certification. In addition, the UC has extended "program approval" status to certain programs (e.g., agricultural education), streamlining the approval process for courses in those programs.

TABLE 3. Summary of California High School Career Technical Education Courses Meeting University of California A-G Admission Requirements from 2009–10

Categories*	AG	BUS	HC	HE	IT	AE	OT	Totals
Number of Schools with UC-Approved CTE Courses	327	455	578	168	277	847	376	---
Number of CTE Courses Meeting the A – History/Social Science	26	6	2	0	0	0	7	41
Number of CTE Courses Meeting the B – English	4	8	5	0	0	1	0	18
Number of CTE Courses Meeting the C – Mathematics	0	5	0	0	0	1	0	6
Number of CTE Courses Meeting the D – Laboratory Science	325	0	586	1	21	0	162	1095
Number of CTE Courses Meeting the E – Language Other Than English	0	0	0	0	0	0	310	310
Number of CTE Courses Meeting the F – Visual and Performing Arts	72	32	0	54	193	3346	0	3697
Number of CTE Courses Meeting the G – College Preparatory Elective	622	6801	254	179	294	124	207	2481
Total Number of UC-Approved CTE Courses	1049	854	847	234	508	3472	686	7650
Number of Schools with No UC-Approved CTE Courses Offered	---	---	---	---	---	---	---	152
Number of Schools Unable to Retrieve Information or New School – No Listing	---	---	---	---	---	---	---	18
Number of Schools with UC-Approved CTE Courses	---	---	---	---	---	---	---	981
Total High Schools Reviewed	---	---	---	---	---	---	---	1193
*Categories are Agriculture Education (AG); Business Education (BUS); Health Careers (HC); Home Economics Careers and Technology (HE); Industrial and Technology Education (IT); Art, Media, and Entertainment (AE); and Other Career Technical Industry Sectors (OT). The CDE study from which these numbers are taken currently categorizes courses by career areas. However, starting in 2010–11, the study will be broken down by the 15 industry sectors (CDE, 2008).								

An analysis prepared by the UC Office of the President cross-walks the UC/CSU eligibility requirements with high school graduation requirements and CTE recommendations.

This analysis concludes, "If a student takes only six (6) classes per year and completes the following course sequence (without need for remedial coursework or repeated courses, and assuming course availability), he or she can easily fulfill high school graduation requirements, take a recommended sequence of career technical courses, and meet minimal UC/CSU eligibility criteria" (<http://www.ucop.edu/a-gGuide/ag/content/OverlapBetweenUCCTEHSgradreqs.v5.doc>).

To achieve the goals of the multiple pathways approach, close the achievement gap, and increase student completion in postsecondary education, students must have access to courses that better prepare them for multiple postsecondary options. Whether a-g is the best approach is under debate, but there is concern that it is insufficient (Grubb & Oakes, 2007). The CSU adopted the a-g requirements to reduce remediation, but its remediation rates barely changed after the adoption. The CSU developed the Early Assessment Program (EAP) as another approach to reduce remediation. This program, therefore, calls into question the efficacy of a-g as an indicator of college readiness. For example, Stanford's Bridge project found that high schools sometimes have different college preparatory tracks that meet a-g requirements – a higher-level track that UC-bound students tend to follow, and a lower-level track that CSU and California community college-bound students tend to follow (Venezia, Kirst, & Antonio, 2003).

A recently enacted law (SB 147, DeSaulnier) encourages CSU to include more CTE classes as eligible for admission requirements. The new law requires that the CSU Board of Trustees develop and implement a process whereby high school CTE courses can satisfy a general elective course requirement for admission to CSU. To the extent possible, the costs associated with these activities are to be covered by the Perkins Career and Technical Education Improvement Act or by other non-state funds.

American Diploma Project and the Early Assessment Program

California participates in the American Diploma Project's (ADP) efforts to align high school standards, assessments, and curriculum with the demands of postsecondary education and careers. Recently, the ADP has focused on helping California leaders reach agreement on the use of a common assessment as an indicator of progress toward postsecondary readiness. The proposed instrument is the augmented eleventh grade California Standards Test (CST), which is the cornerstone of the EAP that the CSU system developed to improve student preparation for CSU curriculum and reduce the need for remediation. Students who perform satisfactorily on the augmented CST are exempted from remedial coursework at CSU. The California Community Colleges are developing a plan to implement EAP, and the UC is conducting an analysis of its possible use (PACE, 2009).

Articulation of CTE Programs

A number of initiatives ensure that students seeking to pursue their interests in career technical disciplines can transition smoothly to programs after high school.

Senate Bill 70: The Governor's Career Technical Education Pathways Initiative

SB 70 seeks to build stronger relationships between educators and employers to increase career exploration for middle grades students and provide opportunities for high school and older students to apply classroom learning in real-world settings through internships, apprenticeships, and other work-based learning. The initiative also seeks to create seamless pathways that coordinate CTE programs across K–12, ROCPs, community colleges, and four-year institutions, utilizing such strategies as career exploration and model articulation agreements. SB 70 funding helps support California Partnership Academies and other pathways using the multiple pathways approach.

Regional Occupational Centers and Programs

As a result of AB 2448 (Hancock), ROCPs are required to articulate 90 percent of their state-funded courses to the community colleges. This requirement, along with the requirement to provide a "course sequencing plan," while suspended until July 1, 2013, due to categorical flexibility, provides students with a pathway that can assist them in reaching their career goals.

Adult Education

Adult schools administered by the CDE also offer CTE courses, serving over 175,000 students in CTE courses in 2007–08. Courses spanned all 15 industry sectors, with the greatest enrollments in finance and business, information technology, and health sciences and medical technology. Adult Education also offers English-as-a-second language, high school diploma/GED, and adult basic education programs, among others. Based on a statewide needs assessment, Adult education is currently developing a strategic plan that will highlight the need for both support to high schools in ensuring student success and strategies to transition students effectively to community college programs as well as employment (<http://www.otan.dni.us/strategicplanning/index.html>).

Community Colleges

In addition to providing transfer programs to four-year institutions in the academic disciplines, community colleges offer a myriad of CTE programs, many of which are linked to high school programs. Some are also linked to four-year institutions

Community college credit-bearing occupational programs. The community colleges offer college-level courses in more than 270 occupational program areas, ranging from accounting to Internet administration, many of which lead to certificates or licenses based on industry standards. These

programs range in length from a few courses to two years. Approximately 5,740 credit CTE programs of 18 or more units are currently offered in community colleges.

Vocational deans or deans of vocational education and economic development oversee programs on most campuses. All new CTE programs must be approved through the district curriculum committee process and demonstrate a sufficient labor market demand for graduates. The California Community Colleges Chancellor's Office (CCCCO) must also approve programs that require 12 or more credits and appear on students' transcripts. In new or emerging areas, programs are also sent to the California Postsecondary Education Commission for review.

Beyond meeting college course and program standards, courses and programs must meet standards set forth in the *Program and Course Approval Handbook*, published by the Chancellor's Office; Title 5 of the *California Code of Regulations*; and the *California Education Code*. Additionally, the regular and systematic review of instructional programs is mandated by Title 5 regulations, and *California Education Code* statutes, and the standards of the Accrediting Commission for Community and Junior Colleges of the Western Association of Schools and Colleges (WASC).

In addition, all California community colleges offer Cooperative Work Experience Education (Co-op), work-based learning that integrates classroom knowledge with productive work experience in a business or industry, guided by a learning plan. Co-op programs help students clarify career goals; reinforce academic skills, workplace competencies, or occupation-specific technical skills; and assist in transitions to employment. Co-op courses are not restricted to students in occupational programs.

Apprenticeships offered through ROCs, adult education, and community colleges. To provide quality classroom-based related and supplemental instruction (RSI) to approximately 70,000 apprentices annually, training committees partner with ROCs, adult schools, and community colleges. RSI classes typically occur after work or in one or two week blocks, when apprentices are not participating in the on-the-job training (OJT) requirement of their apprenticeships. Training programs are either affiliated with ROCs and adult schools through the CDE or with local community colleges and the CCCCCO. The CDE and CCCCCO work closely with the Division of Apprenticeship Standards to support, monitor, and evaluate apprenticeship training statewide, as directed by the California *Labor and Education Code*. Many apprenticeship programs require three to five years of training and in some instances are equivalent to a BA degree in terms of classroom and OJT training time.

Career Ladders Project. Many students need extra support not only while in high school, but in their transition to postsecondary education.⁴⁰ The California Community Colleges' Career Ladders Project (CLP) is designed to improve postsecondary career pathway access and completion for underserved populations. The CLP pursues policy initiatives and makes research-based recommendations regarding career ladder programs in California community colleges. The CLP also provides strategic advice and technical assistance to community colleges and their workforce partners in building regional career pathway and bridge programs. With the sponsorship of the Walter S. Johnson Foundation, the CLP is currently developing Gateway programs that offer bridges

⁴⁰ For more information, see Chapter 5.

to college and careers for disadvantaged youth and young adults in six California counties (<http://www.careerladdersproject.org/about.php>).

The CLP provides technical assistance to the eight partnerships involved in The James Irvine Foundation Concurrent Courses Initiative. Key strategies from this and its other initiatives are pertinent to the multiple pathways approach, including the following:

- Providing access for underserved students to programs that will prepare them for entry- and middle-skills occupations in well-defined career ladders, that is, with opportunities, supported with a "lattice" of ongoing education and training, for advancement to higher level occupations, particularly in high-wage, high-growth careers (<http://www.cccco.edu/Portals/4/Reports/ladders.pdf>)
- Ensuring designated case management, by faculty, counselors, and/or case managers
- Promoting cross-segmental collaboration and partnerships, for example among ROCs, high schools, adult schools, and community colleges
- Using interactive and contextualized instruction not only in academic a-g courses, but in basic skills, English-as-a-second language (ESL), CTE, and college success (counseling) courses

Community colleges – four-year articulation in CTE. Numerous efforts since the 1980s have been directed toward community college and four-year institution articulation. Some students attend community colleges to prepare for transfer to a four-year university. Much attention has been devoted to building pathways connecting high schools to community colleges. Less attention has been placed on extending the educational pathway further from the community college to four-year institutions. The Articulation with Four-Year Institutions Study (also called the CTE 2/4) explores how to ensure that students can continue to four-year colleges or universities while pursuing their career interests in the first two years of community college. The project assesses the state of transfer between community colleges and four-year institutions for CTE students.

The project was launched in 2007 with support from the CCCC and continues with additional funding from The James Irvine Foundation. The Center for Student Success of the Research and Planning Group for California community colleges implements the project. Below are findings that faculty, administrators, and students participating in the CTE transfer project identified.

- California does not, like some states, specify general education requirements for CTE students. For example, 23 states *require* that CTE programs include transferable general education coursework, and California is one of 17 states that only encourages such action. Requiring CTE programs to include transferable general education coursework *may* mean more options for students who complete the program and want to transfer to four-year institutions. However, additional course requirements could also burden students who only seek CTE-program specific certificates.
- California is exploring new ways to award CTE baccalaureate degrees, but no system connects or assesses existing projects. In the past decade, several states, including Florida, Texas, Nevada, and Washington, approved a process for community colleges to award Applied Studies

baccalaureate degrees in disciplines or geographical areas experiencing serious workforce shortages. With a \$100,000 investment in the 2006–2007 Community College Baccalaureate Partnership Act, California began encouraging collaboration between two- and four-year institutions to facilitate students' completion of a baccalaureate degree on community college campuses in areas with low baccalaureate attainment and specific labor market demands. Two CSU campuses (Dominguez Hills and Stanislaus) offer the Applied Studies baccalaureate degree. Both degree programs are interdisciplinary and are housed in the host colleges' business departments. Two additional Applied Studies baccalaureate degree models are offered at four-year colleges around the country.

In California, nursing and child development are the only disciplines that have made significant progress in developing a statewide infrastructure for 2/4 CTE transfer. The CSUs agreed to a standardized curriculum for the BS degree in nursing. A community college effort created a foundational core of child development courses; it parallels a CSU initiative to award full credit to transfer students who complete the courses.

The project team conducted surveys and interviews to identify barriers to and opportunities for 2/4 CTE transfer. Effective practices supporting CTE students in their pursuit of transfer included:

- Regional or statewide agreements between community colleges and the CSU/UCs to streamline and support transfer in one or more high-growth disciplines (e.g., nursing)
- Regional agreements, often between one CSU and several local community colleges, around one CTE program
- Bridge or connector courses for students interested in transfer designed to increase their preparedness for university-level instruction
- Incorporation of transfer information (e.g., through outreach, recruitment, field trips) into courses so students are aware of opportunities to transfer to four-year institutions
- Dedication of advisors or counselors to CTE programs to provide information and technical assistance related to specific transfer paths and opportunities

Private Postsecondary Colleges and Universities

Private colleges and universities account for about 16 percent of undergraduate students. While this percentage is small compared to other large states, student enrollment in California's private institutions has increased in the past decade, particularly in state-approved private colleges not accredited by WASC. These enrollment increases and innovative delivery models suggest that partnerships with local private institutions – and online education opportunities – are important for pathways.

- Connections with mentors, including faculty, counselors, employers, and peers

- University partnerships to offer baccalaureate-level courses at the community college to address distance issues

Examples of Postsecondary Linkages

Some examples of current postsecondary linkages with pathways could potentially be used as models for others beginning to explore these relationships.

In March 2007, the Long Beach Unified School District's (LBUSD) Board of Education adopted the Academic and Career Success Initiative (ACSI) to increase the college and career readiness of all students and ensure that students graduate from Long Beach high schools with as many postsecondary options as possible. The initiative includes efforts to educate students and parents about a-g courses (without requiring that all students complete the a-g curriculum) and about career options (as early as sixth grade); collaboration between K–12 and higher education to establish criteria for guaranteed college admission; and identification of various college pathways for students and aligning these higher education initiatives with CTE to ensure that students have as many options as possible upon graduation from high school (http://www.lbschools.net/Main_Offices/Superintendent/Success_Initiative). Specific examples of practices in Long Beach include:

- **Collaboration among leaders across educational segments.** In March 2008, leaders from LBUSD, Long Beach City College (LBCC), and California State University, Long Beach (CSULB), signed the Long Beach College Promise (<http://www.aypf.org/publications/documents/TheLongBeachPromise.pdf>) – a joint commitment to make college an attainable goal for all students. This promise includes a tuition-free first semester to all incoming LBCC students by 2011, and the offer of admission to CSULB to students who complete minimum college preparatory requirements or minimum community college transfer requirements. While this initiative was not specifically linked to a pathway implementation, its development supports a multiple pathways approach.
- **Collaboration across segments regarding core content.** LBUSD and LBCC faculty jointly developed the articulation agreement for a beginning carpentry course. They put together all of the requirements for students to complete the course. Upon high school course completion, students are referred for enrollment in the college course. Since attaining the appropriate level of mathematics skills is a challenge for many students, teachers provide a study guide to help students pass the exam (CCCCO, 2008).

Other examples of promising practices for promoting student transitions to postsecondary education have emerged.⁴¹ One option is having representatives from community colleges, four-year institutions, and business and community organizations visit middle schools and talk to students about preparing for college and the workforce.⁴² In another example, Santa Barbara City College has used counselors to directly connect with high school students. A designated CTE counselor supports all of the high school academies and pathways. This counselor meets with high school teachers and

41 Information provided by respondent during Valenica High School, Hart Unified School District interview.

42 Input provided by Web Dialogue respondent on May 19, 2009.

counselors and hosts a fair on campus that brings both college and high school students together to meet college department chairs and faculty.

CHALLENGES

A number of challenges exist in ensuring that pathway students have access to a full range of postsecondary options.

Creating a Postsecondary Culture in High School

A key issue in the success of the multiple pathways approach will be ensuring that high schools (and, ideally, middle schools) have a culture that encourages postsecondary education and life-long learning.

Conley (2009) argues that this culture requires that students receive information about several key factors: the knowledge and skills necessary for postsecondary success, admission requirements and processes, financial aid and testing requirements, and “key cognitive strategies” such as problem solving — the non-academic knowledge and skills necessary to thrive in postsecondary education. A postsecondary culture enables students to not only be eligible for admissions, but to be prepared to succeed in postsecondary coursework. AVID is an example of a successful program that creates a postsecondary culture for students in the middle who are often economically disadvantaged and underachieving.⁴³

California-specific issues related to a postsecondary culture include increased awareness of a-g requirements, increased awareness of UC/CSU testing requirements, and increased expectations among teachers about how many students might advance to (and succeed in) postsecondary education (<http://collegetools.berkeley.edu>). Equally important, it would be useful for students to have increased awareness of community college expectations, but those are not as clearly communicated as are those for four-year colleges and universities. The reason is important; namely, community colleges must serve everyone in their communities and do not want to diminish access by appearing to have standards that are too high. The reality, though, is that all community colleges have standards in place for students to be able to enroll in college-level courses, yet those standards are not communicated clearly to high school students. This issue is critical for expansion of the multiple pathway approach, since many pathways link directly to community college pathways.

Currently, many California schools are not well equipped to provide postsecondary information or to have these expectations and opportunities for all students. In addition to caseload problems, counselors often have so many immediate fires to put out (e.g., discipline problems, testing, psychological counseling) that college counseling — particularly for students who are not viewed as college-bound — falls to the back burner or never occurs at all (Venezia, Kirst, & Antonio, 2003).

Further, in the multiple pathways approach, promoting and supporting postsecondary education opportunities must convey information about all options, including training programs, military

⁴³ For more information on AVID, see Chapter 5.

options, community colleges, and four-year universities — and the benefits of each in light of the students' interests and goals.

System Structure and Lack of Alignment Between Segments

The segmented nature of California's educational system poses a major challenge to establishing strong postsecondary linkages as part of the multiple pathways approach. The three-tiered higher education system tends to focus on distinctions among the segments rather than on statewide needs (Richardson et al., 1999; Callan & Finney, 2003). While there has been a substantial bridge in the gap, misalignment, and duplication of efforts still exist between K–12, adult education, community colleges, and CSU/UCs; more close coordination among these entities could result in greater benefits for pathway students in a more cost-efficient way.

One area of misalignment is in the standards and assessments required to leave high school and those required to succeed in college. Students receive conflicting messages about the relationship between high school graduation standards and expectations for entry-level, credit-bearing college courses. For example, eleventh and twelfth grade assessments often require different knowledge and skills than do postsecondary entry and placement exams, and faculty expectations differ between high school exit and college entrance (Venezia, Kirst, & Antonio, 2003; Venezia, 2008). There is also a wide gap between the expectations set by the CAHSEE and postsecondary entrance-level expectations for college-level work.⁴⁴ This misalignment is not only challenging for students; it is costly to the state, according to a California Legislative Analyst report, due to the need to provide remedial courses at the postsecondary level (Taylor, 2010).

Further, the current variety of articulation vehicles for CTE courses among different community colleges, high schools, and ROCPs can make it challenging for students to actually use the credits they earn in articulated secondary courses (WestEd, 2006; CDE & CCCC, 2008). A more standardized approach to articulation would better meet the goal of seamless transitions for students in pathways.

These distinctions between the segments are reflected in separate data systems as well. The current differences between the California Basic Education Data System (CBEDS) used by the K–12 system and Taxonomy of Programs (TOP) codes used in the community college system pose challenges to data gathering and analysis. There is a need to coordinate student data-gathering and analysis across the K–20 spectrum.^{45, 46}

Monitoring Student Progress

Information on student progress both during and after high school will be critical to the successful implementation of a postsecondary transition component of the multiple pathways approach. For

44 The CAHSEE has two parts: English-language arts (ELA) and mathematics. The ELA part addresses state content standards through grade ten. The mathematics part of the CAHSEE addresses state standards in grades six and seven and Algebra I (<http://www.cde.ca.gov/ta/tg/hs/overview.asp>).

45 For more information, see Chapter 12.

46 Input provided by public comments respondent on January 14, 2010.

example, schools will need to conduct better monitoring of whether students are meeting a-g requirements, so that students can be aware of any deficiencies with sufficient time to change their schedules.

The Transcript Evaluation Service (TES), administered by the UC Office of the President and available to public high schools upon application, might help schools have a better sense of how well their students are progressing towards meeting a-g requirements. TES electronically examines the transcripts of a high school's students. Schools can use information from TES reports to determine whether individual students are on track to meet a-g course requirements or reach postsecondary goals for work. In addition, schoolwide reports can also help schools determine whether they are offering a sufficient number of a-g courses in each subject. A recent pilot test found that schools using the TES were actually able to increase the proportion of students, particularly in grades nine and ten, who were on pace to meet the UC and CSU requirements (Sanchez et al., 2009). The study's researchers recommended that TES should be made available to more high schools, as it currently exists in only 80 high schools. TES could be modified to show whether students have taken CTE courses that have been approved for a-g credit; tracking completion of all CTE courses would require significant changes to TES.

The success of the postsecondary transition efforts in the expansion of the multiple pathways approach must also be measured by what happens to students who go on to all segments and types of postsecondary education – including adult education programs, apprenticeships, the military, community colleges and four-year institutions – and then enter the workforce, and for students who enter the workforce directly after high school. Often, schools are only concerned about how many students they send to college – not if they complete college and go on to work.

Cal-PASS (the California Partnership for Achieving Student Success) collects, analyzes, and shares student data from elementary school through postsecondary education for institutions that sign annual agreements to participate in data sharing. It is a regional approach to collecting and utilizing data, although the potential for statewide data use is strong; the main foci are to track student performance and improve student success rates throughout California's educational systems. Over 6,800 K–12 schools and postsecondary institutions in over 50 counties currently participate in Cal-PASS (<http://www.cal-pass.org>).

A second "prong" of Cal-PASS is to develop and utilize regional councils comprised of teams of discipline-based faculty from elementary school, middle school, high school, community college, and university segments. The councils discuss curriculum, teaching practices, instructional materials, and performance measures, using the transition data to frame the conversations. Current councils focus on language arts, mathematics, English learners, career preparation, science, and counseling. If pathways participation was identified on students' high school transcripts, Cal-PASS data could potentially be disaggregated by that factor to help policymakers, researchers, and educators understand the effectiveness of the pathways in relation to high school graduation, postsecondary entrance, and postsecondary completion. Cal-PASS is currently enhancing its capacity to include workforce data.

Challenges to Dual Enrollment

Any initiative that offers concurrent enrollment in California will run into several major challenges, including the following (Kirst, Venezia, & Nodine, 2009):

Minimum daily attendance in high school. California has minimum time requirements. Each dually enrolled student must attend high school at least 240 minutes per day for the school districts to claim full funding for that student. The minimum attendance levels are inflexible and provide disincentives for high schools to create opportunities for students to take college courses. College classes are often offered in blocks of time on odd or even days, an approach that conflicts with schedules requiring students to attend high school daily.

Dual enrollment students receive low priority during registration. The state requires that high school students who are dually enrolled receive low priority for community college courses during registration, so that they will not displace other community college students. This requirement is particularly problematic now, given course cutbacks in higher education this year.

Limitations on college enrollment of high school students during summer. The state caps dual enrollment in summer sessions at California community colleges; in addition, community colleges are cutting summer school.

To address these challenges, the state must develop a clear vision of the definition of student readiness for postsecondary opportunities. As *Ramp Up to College* (Kirst, Venezia, & Nodine, 2009) states:

California's policy approach to dual enrollment has largely been focused on guarding against the abuses of finance policies...The lack of a statewide vision for the role of dual enrollment in college readiness has had a chilling effect on existing and prospective [comprehensive concurrent enrollment] programs and has made them vulnerable to short-term, *ad hoc* decision-making and changing conditions at the local level.

CONCLUSION

Student readiness for — and entry into — postsecondary educational opportunities in community colleges; colleges; universities; and vocational, technical, or professional schools; and high-wage careers are the ultimate goals of the multiple pathways approach. While California is implementing a number of initiatives designed to improve students' readiness and access, the state must continue to address a number of challenges for students to have full access to these options.

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Chapter 9. Regional Coalitions

INTRODUCTION

Regional approaches and coalitions have long been important to the effective delivery of educational services in California, largely due to the state's size and diversity. Regional coalitions and structures have developed in both educational, economic, and workforce development sectors to address pressing needs through collaboration and leveraging of resources. This chapter describes collaborative regional ventures in relation to pathways and identifies effective regional coalitions and partnerships. The chapter offers a brief overview of organizations and collaboratives whose work can be leveraged in implementing the multiple pathways approach.

EFFECTIVE PRACTICE

Regional coalitions, partnerships, and "third party" organizations can play critical roles in facilitating the expansion of the multiple pathways approach in their areas, but they must operate effectively to achieve their goals.

The Roles of Regional Coalitions and "Third Party" Organizations

Partnerships with industry, postsecondary institutions, and community organizations are essential to the multiple pathways approach. These partnerships serve important functions at many levels. At the state level, various partnerships and coalitions, such as the Superintendent's P-16 Council, the California Workforce Investment Board, and statewide industry associations help set policy and priorities. At the regional level, partnerships harness and leverage resources to support regional needs and local initiatives. Locally, effective coalitions and partnerships promote districtwide coordination and development of pathways across a district, and provide continuity over time. The partnerships ensure that their members represent all key stakeholders. Effective coalitions that support the multiple pathways approach, while perhaps focusing on one aspect of the work more than others, promote a coherent agenda — the success of all students, irrespective of the path taken.

A consortium of organizations, including the American Youth Policy Forum, Academy for Educational Development, Coalition for Community Schools, The Finance Project, Jobs for the Future, and New Ways to Work identified four essential roles for partnerships, coalitions, and organizations that aim to improve services for children, youth, and families (Blank et al., 2003). The roles of these organizations include:

- **Engaging, convening, and supporting critical constituencies** — bringing together diverse constituencies to increase public and partner involvement, design new initiatives, strengthen local institutions, and promote tangible results.

- **Promoting quality standards and accountability** – helping service providers identify standards for assessing service quality and use data more effectively to promote continuous improvement and demonstrate positive outcomes and tangible results.
- **Promoting effective policies** – educating elected officials, funders, and policymakers about specific policies and investments that can strengthen local organizations and promote more effective services for young people and families.
- **Brokering and leveraging resources** – brokering and leveraging diverse public and private resources, which involves increasing the efficiency and impact of service providers and attracting resources that individual organizations often cannot secure on their own. Resources may be monetary or physical and also include access to knowledge (e.g., labor market information) and learning opportunities, such as internships.

Some organizations emphasize one set of functions more than others.

Engaging, convening, and supporting critical constituencies. Linking Education and Economic Development (LEED) (<http://www.leed.org>) is a regional coalition. LEED has brought together top leaders from the six-county Sacramento region to develop partnerships among employers, educators, and civic interests that align educational resources to meet workforce needs and economic demands. LEED does so through a three-pronged approach: workforce, educational, and student development. Higher education – represented by executive leadership from UC Davis, CSU Sacramento, and the Los Rios Community College District – is at the table in addition to industry partners. LEED's initiatives include the development of small schools and small learning communities to personalize learning for students, as well as employer roundtables in specific industries. LEED was directly involved in Sacramento Unified School District's successful application for participation in the California Multiple Pathways District Initiative. LEED will play a key role in assessing the region's workforce needs (ConnectEd, 2009) and has recently approved a six-county Regional Career Academy Initiative. In addition, the Ford PAS Next Generation Learning (NGL) program provides a model and processes for organizing employer and community support for the multiple pathways approach around economic and workforce development. Ford PAS NGL has developed principles, core attributes, and tools for creating a business/civic advisory board and collaborative development of a community master plan.

Promoting quality standards and accountability. The Merced P-16 Education and Community Council supports student success and transitions to postsecondary education and has recently taken on the goal of supporting pathway formation. As a member of the Alliance for Regional Collaboration to Heighten Educational Success (ARCHES), the Council's efforts are driven by rigorous data collection and analysis to continually assess progress in the achievement of its goals (Darche, Nayar, & Bracco, 2009).

Promoting effective policies. The California Partnership for the San Joaquin Valley (<http://www.sjvpartnership.org>), formed in June 2005 by Governor Schwarzenegger to ensure the economic success of the region, passed a resolution supporting the "creation of a college-going culture" and the alignment of CTE courses to target industry clusters. This resolution – with input from all the

county offices of education – will influence policies in all seven counties in the region through a resolution to:

- Engage in important policy discussions focused on “testing” whether current policies, practices, and traditions lead to educational equity and access.
- Promote a multiple pathways approach for postsecondary education and career opportunities for high school students.
- Support at least one pilot project linking higher education, workforce development, and K–12 education.⁴⁷

At the same time, partnerships developed in Tulare County resulted in a grant from ConnectEd: The California Center for College and Career to develop a multiple pathways system in Porterville. The grant represented the culmination of years of previous partnership building, including work with the county’s youth council and the National Academy Foundation, and participation in the national Intermediary Network. It is anticipated that the multiple pathways initiative in Porterville will shift the concept of career education from “college preparatory track versus career technical education to the realization that all students benefit from courses of study that integrate challenging academics with demanding technical components” (ConnectEd, 2009).

In another example, the Santa Ana Partnership, an ARCHES collaborative with the leadership of Santa Ana College, influenced graduation requirements to enable students to take both college preparatory and CTE courses. This change was accomplished by incorporating state standards previously covered in a stand-alone health class into science and physical education, and by taking a one-semester college and career planning class and expanding it into a series of content-related lessons in English-language arts and social science from sixth grade through high school graduation. These changes were implemented in the 2009–10 academic year.⁴⁸

Brokering and leveraging resources. Locally, partners play critical roles in brokering and leveraging resources. For example, partners serve on advisory boards and inform program development. They provide input on curriculum and projects; advise teachers on current industry standards; provide professional development opportunities for teachers through tours and externships; and provide work-based learning for students, including input on student work, even if experiences occur at school sites. Postsecondary partners provide campus tours and outreach programs and information to schools and districts about standards and transition programs. Community partners provide work-based-learning opportunities, such as “social enterprises” for learning. One West Contra Costa County educator noted:

Having worked in this field for 30+ years, the best outcomes that I have seen related to implementing work-based learning are the results of recruiting, growing, and valuing industry and community partners. They are key to helping districts. School districts frequently are uncomfortable about allowing partners true and equal access to influencing

47 Input provided by e-mail on November 6, 2009.

48 Input provided by e-mail on November 11, 2009.

outcomes. They look to them for financial support and worksite support. Partners can bring a lot more to the table.⁴⁹

Essential Elements of Successful Coalitions and Partnerships

The California Alliance of PreK–18 Partnerships (California Alliance of PreK–18 Partnerships, 2004) identified the following eight essential elements for an effective educational partnership:

- **Shared vision and goals.** The vision and goals for the work are based on identified community needs, developed through consensus, and updated regularly.
- **Effective communication and decision-making.** Communication channels and frequency of communications are specified. Leaders meet regularly, and paid staff lead and guide communication. The partnership communicates with the public about progress and services (e.g., via newsletters and presentations).
- **Respect for differences.** If possible, the partners formally assess differences in organizations and their goals. The partnership focuses on the common needs of its partnering organizations, not just on differences.
- **Continuous process to stay relevant.** Systems allow the partnership to remain relevant to the needs of the partners and the community (e.g., regularly surveying constituents about their workforce needs, and formal strategic planning processes). The partnership actively links educational and workforce partners so that they can support each other's goals and use research to inform their ongoing work.
- **Appropriate organizational model.** The organizational model includes one or more broadly representative advisory committees (including representatives from the teachers' union, funding foundation, schools and school district, parents, and business community), with a partnership coordinator who manages day-to-day activities and has dedicated time to do so.
- **Committed members.** Partners make strong commitments to support the vision and goals, including commitments from the top leadership in partner organizations. The educational community views the partnership work as a central initiative, not just as a small project.
- **Continuous evaluation.** Evaluation plans obtain data from their partners that can inform decision-making about how to address their constituents' needs and as evidence of program effectiveness. If possible, the partnership has an internal or external evaluator.

In addition, the following factors in partnership building are critical in the multiple pathways approach:

- **Make linkages meaningful.** Employer partners need to feel as if their contributions are meaningful and significant.

⁴⁹ Input provided by Web Dialogue respondent on May 19, 2009.

- **Develop community champions.** Effective partnership does not only mean holding meetings with partners, but also drawing strategically on community members to champion the work – sometimes more effectively than educators can do alone.
- **Allow time and resources for collaboration.** Effective partnership building requires time and should be built into administrators' ongoing responsibilities.
- **Conduct effective meetings.** Technical assistance, tools, and templates are needed for effective coalition building.
- **Ensure follow-through.** Employer partners need to see their efforts come to fruition, or they will not believe that their contributions are taken seriously. Follow-through includes showing partners their results in student work – through performances, exhibitions, and student achievement data.

CURRENT STATUS

Multiple types of existing regional structures and coalitions can be expanded or replicated to support the development of pathways in California. These entities have evolved or have been created to serve specific purposes, although most serve multiple purposes. Some operate on both policy and operational levels, while others are primarily operational.

The following section provides examples and describes how each of these types of organizations supports the implementation of pathways in the multiple pathways approach.

Broad Regional Partnerships

Most broad regional partnerships have both K–12 education and workforce development agendas. While these organizations operate largely at the policy level, they also catalyze action and facilitate program coordination and implementation. Large regional organizations hold promise for convening policymakers, organizational leaders, and stakeholders to support the development of pathways across their regions. The organizations can also facilitate implementation of new pathways and advocate for statewide policy changes.

The California Partnership for the San Joaquin Valley includes representatives from all of its county offices of education, with the goals of both strengthening K–12 education and promoting alignment of CTE with local workforce needs. Governor Schwarzenegger and the state legislature set aside \$2.5 million for seed grants.

The Bay Area Council (<http://www.bayareacouncil.org>) promotes workforce development through what it calls “the talent pipeline” – a demand-driven education and training system that will prepare all segments of the population to succeed in the knowledge economy. The Bay Area Council is a member of the Linked Learning Alliance.

Regional Efforts Focused Primarily on Workforce and Economic Development

Many regional efforts link education to workforce and economic development in very specific ways, through labor market research, direct support to school districts to create pathways, development of curriculum in alignment with industry needs, implementation of work-based learning, and other targeted initiatives.

Local Workforce Investment Boards convene workforce, economic development, industry, educational, and community partners to promote workforce development. The 49 local WIBs are responsible for monitoring industry trends and needs; mapping the gaps between the needs of the economy and the current delivery system; and providing information about jobs and pathways (California WIB, 2007). Local WIBs also oversee local youth councils. In addition, WIBs oversee One-Stop Business and Career Centers in their communities. The centers provide many training and job placement resources and can thereby expand the capacity of school districts to provide career exploration and preparation opportunities for high school students.

Regional Occupational Centers and Programs were established as regional programs or centers to allow students from multiple schools or districts to attend career technical training programs, regardless of the geographic location of their residences. Regionalization provides for efficient use of limited resources, while allowing students access to a broad array of training opportunities that often require expensive technical equipment and specially trained and experienced instructors (CDE & CCCCCO, 2008). California has 74 ROCPs, with three distinct organizational structures: county-operated (42), joint powers agreement (26), and single district (6) (CDE, 2008). Additionally, ROCPs are organized into four regions: northern, southern, coastal, and central with CDE staff assigned to these regions.

ROCPs offer opportunities for strengthening regional collaboration to support the multiple pathways approach. ROCPs housed in county office of education are in a strategic position to participate in – and lead – countywide efforts, including professional development that involves both CTE and academic teachers. Joint powers agreement and district-based ROCPs can also play these roles, on their own or with county offices of education.

A key feature of ROCPs is their direct link with industry and the requirement that they have advisory boards (CDE, 2008). Board members represent trade organizations, businesses, or government agencies, school district CTE advisory committees, and public and private postsecondary educational institutions.

California *Education Code* Section 52302.2 requires each ROCP governing board to establish and maintain an advisory board for each pathway within an industry sector for which the ROCP offers courses. ROCPs may combine pathways if they deem it is appropriate for the subject area. The boards must meet at least once annually. They do not approve curriculum, but they provide the ROCP with information and confirm that the course meets employers' needs. Advisory boards assist in developing certificates that identify the skills and knowledge that students are expected to acquire; approve the criteria used to evaluate student acquisition of the identified skills and knowledge; review whether students possess the skills needed for success in employment in a given occupation;

review the occupational sequences the ROCP offers; provide ROCPs with input related to internships, summer employment, and post-graduation employment for students; and create college scholarships for students participating in the course sequences.

From an operational perspective, ROCPs have a critical role in bringing employers to the table, as well as lending their expertise in CTE and work-based learning within specific industries. ROCPs can also play a role across industries. While the California *Education Code* requires ROCP advisory committees to be created by occupational course, rather than by industry, the committee structures and processes could be built upon to support the development and sustainability of pathway programs.

CTE Community Collaboratives, funded by SB 70, provide coordinated and strategic leadership for CTE efforts in their service areas. Groups applying for these grants are pre-approved by the California Community Colleges Chancellor's Office and the CDE to ensure that all required partners are involved (e.g., community colleges, K–12, ROCPs, businesses, and industry) as well as other partners needed to create a seamless system of CTE between secondary and postsecondary education. A collaborative is also required to have a shared management committee. The four required areas of activity for CTE Community Collaboratives are:

- Career exploration development for seventh and eighth grade students
- Career and technical education sectors
- Teacher and faculty externships with business and industry
- Professional development in CTE

Some CTE Community Collaboratives also receive Workforce Innovation Partnership grants and supplemental grants. The Workforce Innovation Partnership grants promote projects that identify high-quality career pathways and training priorities related to high-growth industry sectors and that develop innovative service-delivery projects.

SB 70 Community Collaborative Grants have supported collaboration and program development, including the development of additional partnership academies. These resources can continue to be leveraged to develop CTE programs as core components of pathway programs. Community Collaboratives also offer forums for dialogue among faculty across segments and across various disciplines working together to create pathways and foster postsecondary transitions.

High School CTE Program Advisory Committees exist where local CTE programs are required to have advisory committees. District programs with Perkins funds must have at least one annual business and industry advisory committee meeting and planned business and industry involvement. While not regional in nature, these advisory committees can also be viewed as part of the district's employer engagement system (Darche, Nayar, & Bracco, 2009).

Cross-Segmental Regional Coalitions to Promote Postsecondary Transition

Regional coalitions can facilitate student academic achievement and postsecondary transitions for students through "vertical" linkages among the educational segments. Regional coalitions established

primarily for this purpose are defined by the service areas of regional postsecondary institutions (California State Student Association, 2006).

ARCHES

ARCHES was launched in 2005 as an initiative of the California Academic Partnership Program, a collaborative CSU administers on behalf of all the state's educational sectors, and the California Education Round Table, the voluntary association of the chief executive officers of all educational sectors and its programmatic arm, the Intersegmental Coordinating Committee (CDE, 2009). ARCHES partners with California Engaging Latino Communities for Education (ENLACE), a three-year statewide initiative the W. K. Kellogg Foundation sponsors to increase the academic success of the Latino population (ARCHES & ENLACE, 2006).

There are currently 32 ARCHES-ENLACE collaboratives in California. Each collaborative defines its own regions, but it is required to have both K-12 and postsecondary members, including representatives from both the community colleges and at least one baccalaureate-granting institution, as well as at least two representatives from each of business, community-based organizations, and "family centered" organizations. While each collaborative identifies its regions, all fall within the service area of a four-year university campus.

The mission of ARCHES-ENLACE is to improve student achievement. The ARCHES initiatives not only facilitate the accomplishment of specific goals in participating collaboratives, but also promote learning within and among collaboratives.

The James Irvine Foundation provided ARCHES a three-year grant to support six new regional collaborative projects during their 2008-09 planning year to each launch two pathways. These collaboratives have been instrumental in the launching and supporting pathway programs (WestEd, 2009).

ARCHES-ENLACE collaboratives hold promise for facilitating the development of pathways by leveraging their attention on student achievement, their focus on data, their commitment to collaboration, and their past cross-segmental relationships. While ROCs and businesses have not had significant roles in many of the collaboratives to date, the six new developing pathways have included those partners to ensure that all of the pathway components will be put in place.

The Santa Ana Partnership has worked with ARCHES to create a new intersegmental pathway program initiative that offers current high school students the opportunity to concurrently pursue college certificates in four high-demand career fields. The Partnership created not only "non-negotiable" requirements in mathematics and English language-arts, but also a framework for sustaining this group by linking it to regular, year-round Santa Ana Unified School District administrative meetings and other partnership activities. The Partnership was a driving force at every stage of framing, designing, and preparing to implement the multiple pathways initiative as a component of its overall vision for college going and the achievement of a rigorous and relevant secondary school program of study (WestEd, 2009).

Local P–16 Councils

The Superintendent of Public Instruction and the Governor have highlighted the need to coordinate reform efforts across the educational continuum from preschool through university. “P–16” efforts are also occurring locally. Approximately 28 P–16 voluntary councils have been launched in California, and a little over half of these receive some support and technical assistance from ARCHES. The State Superintendent’s P–16 statewide council has encouraged this development, and county superintendents have played a supportive role (Shulock, 2003; Shulock, 2004).

Local or county P–16 councils can facilitate the implementation of pathways. For example, the councils can help ensure that students coming into high school are prepared to take on rigorous high school pathway curricula and then move smoothly to postsecondary education. The councils can encourage regional systems of pathways, taking advantage of economies of scale in P–16 articulation and employer engagement. Equally important, P–16 councils contribute to the elimination of thinking “either/or” about high school programs, fostering instead a focus on the high standards and skills required to succeed in both postsecondary education and careers, with the understanding that all students need to prepare for entry into the workforce. Some states, like Arizona, have even formed P–20 councils that include graduate programs.

Counties and Regional Professional Organizations Focused on Dissemination and Professional Development

County offices of education and professional organizations play key roles — particularly with regard to professional development, technical assistance, and dissemination — that can support the expansion of pathways.

County Offices of Education

County offices of education can leverage county educational resources and promote efficient and coordinated dissemination of information and professional development of educators. County offices have responsibility for many services that districts would otherwise not be able to provide cost effectively on their own, such as special education services. The most important services for supporting the multiple pathways approach are professional development and technical assistance to districts. In providing these services to multiple districts, not only do county offices save money, but they also promote cross-district learning and information sharing. The county offices also participate in local WIBs. The county offices are therefore well positioned to provide or facilitate professional development and technical assistance in the implementation of pathways within and across districts. County offices can provide guidance on integration of curriculum, implementation of work-based learning, and improvement of student support services. They can also provide guidance on selecting and distributing pathways by industry within and across districts in the county. County offices can also play an important role in countywide outreach to employers. In San Bernardino County, the county office of education coordinates the San Bernardino County Alliance for Education, which, through a Business/Community Liaison position, nurtures active and ongoing involvement by industry partners.

Further, in recent years, some county offices of education have also become District Assistance and Intervention Team providers, offering technical assistance to districts and schools in their counties in “program improvement” under NCLB. In this capacity, the county offices have considerable influence over the kinds of interventions that are implemented, and they can play a significant role in encouraging districts to see the multiple pathways approach as a means to improve student achievement.

County offices can support existing small learning communities, bring academic and CTE teachers together, and share ways that programs are overcoming challenges. County offices can facilitate both the understanding and the implementation of the multiple pathways approach by bringing business partners to the table, bringing teachers together within their own counties, and working with their colleagues across counties to promote a cultural shift – expanding education to include more relevant curricula and partnerships with businesses and communities.

County offices, especially those that manage ROCPs, also may be uniquely positioned to help broker other services, such as transportation – both for students who may need to travel to schools that offer their pathways or to work-based learning sites. County offices can also leverage their technology services to facilitate access to integrated curricula, tools, and resources, especially in rural areas where pathway development may be challenged by lack of a critical mass of students with interest in an industry.

Association of California School Administrators (ACSA) Regions

ACSA (<http://www.acsa.org>) has 19 regions that provide opportunities for professional involvement among administrators in neighboring school districts. The regional structure allows administrators to discuss statewide educational issues. ACSA regions offer workshops and programs and could support pathways through advocacy, convening, and professional development activities.

Promoting Workforce Development by Industry

Many industry organizations are regional or have regional activities. Examples include local Building and Construction Trades Councils and the Hospital Association of Southern California. Industry groups can continue to support both local and statewide pathways in their industries.

At the school level, industry partnerships are invaluable. The Stanley E. Foster Construction Tech Academy was founded with the construction industry's support in San Diego, partially to help address the industry's workforce shortages in the area. It uses a pathway approach to teach an academic and career technical curriculum that is standards-based, integrated, and aligned to the theme of architecture, construction, and engineering (Darche, Nayar, & Bracco, 2009).

Academy-, School-, or District-Focused Support for Pathway Development and Transitions to Postsecondary Education

Academy Advisory Committees

Both California Partnership Academies and NAF academies require advisory boards. In CPAs each academy has a partnership with employers. Employer representatives:

- Serve on an academy steering committee that oversees the program.
- Help to develop the CTE curriculum.
- Provide speakers for academy classes.
- Host field trips to give students a perspective of the workplace.
- Provide mentors who serve as career-related role models and personal contacts in the field of training.
- Provide internships and summer jobs for academy students (CDE, 2009, August).

Districtwide Partnerships

Broader district or multi-district advisory organizations are needed when academy advisory groups succeed in their work and want to coordinate outreach to employers, or when districtwide efforts require coordination. The California Multiple Pathways District Initiative promotes sustainability by requiring each funded district to establish a broad-based community coalition that promotes shared vision, commitment, responsibility, and leadership among business/industry, civic, postsecondary, and community organizations.

Examples of district and multi-district partnerships that have supported pathways include the West Contra Costa Partnership and the Tri-Valley Educational Collaborative (TEC). The West Contra Costa Partnership focuses on work-based learning, curriculum and standards, and resource development. The Partnership has a board of directors with a key industry partner as chair. It includes a lead teacher from each academy in the district. Industry representation often includes individuals responsible for workforce development in participating organizations or other individuals who can bring both resources and visibility to the partnership and who can, in turn, showcase partnership activities in their own public relations campaigns. Districtwide coordination of the partnership is critical, not only to ensure cross-school coordination, but because individual teachers often do not have the time to attend to nurturing relationships with business partners. The partnership was critical in helping West Contra Costa Unified School District secure its participation in ConnectEd's district initiative.

The TEC, in eastern Alameda County, has developed an "Employability Certification" program for high school students to help them prepare for the real world of employment in their future. This certificate ensures that students have achieved employment literacy standards through a rigorous set of criteria that demonstrate to potential employers that the students are ready to enter the world of

work. In its first year (2006), 35 students met the requirements for the certificate; in 2007 there were 92, and the numbers continue to grow. The Tri-Valley Business Council endorses the program and signs the certificates as well.

Local Chambers of Commerce

Chambers of commerce can also support pathway programs. Many chambers have education committees that support local district and school efforts for both academic achievement and workplace experience and can catalyze activity in their areas. The Los Angeles Chamber of Commerce, for example, has played a key role in championing the multiple pathways approach in Los Angeles.

Parent and Community-Driven Coalitions

Parent and community groups can also play a vital role in expanding pathways. Partnering with community groups to educate and engage parents and students in promoting the multiple pathways approach gives credibility to the reform, and helps ensure that policies and practices are more sustainable and effective. In addition, as powerful voices of change and accountability, parents and students can call attention to educational inequities as well as opportunities for improvement. These voices can inform policy making and practice at the school, district, municipality, and state. Through unified efforts, parents can have the chance to become partners in education, and students can become informed consumers of education and mentors to younger students.

Los Angeles offers an example of parent organizing in support of the multiple pathways approach. The Alliance for a Better Community helped promote events in support of the approach at the outset and continues to coordinate briefings, workshops, and site visits to model programs for a broad range of stakeholders. Its white paper, *The Bottom-Up Approach: How Youth and Parent Organizing Strengthens Multiple Pathways*, argues for the importance of parent, student, and community engagement in supporting the multiple pathways approach to high school reform.

Coalitions and Organizations That Support the Needs of Specific Populations

If pathways are to serve students with diverse needs, the support of coalitions that target specific populations will bolster the effort. Workforce Investment Act (WIA) youth councils, Special Education Local Plan Areas (SELPAs), AVID, and Gifted and Talented Education (GATE) programs are examples of programs that have their own structures, funding, processes, and constituencies. Collaboration with these efforts can bring greater resources and coordinated services to pathway programs.

For example, WIA youth councils, operating as subcommittees of their local WIBs, help allocate WIA funds for economically disadvantaged youth, ages 14 to 21 (and up to age 24 for the summer youth employment program). Participation in youth councils can provide access to resources that will help support students in pathways and facilitate broader system development. For example, the Tulare County Youth Council assists the Tulare County WIB (<http://www.tcwib.org>) in developing and recommending local youth employment and training policy and practice. Beyond the practical function of the Council, however, lies the much broader vision of an integrated youth development

system responsive to the needs of all Tulare County youth. This vision drives the Council's work connecting and linking existing youth organizations into one system. The Tulare County Youth Council was instrumental in connecting the Porterville Unified School District with resources to pursue a multiple pathways approach to high school reform.

Interest-Based Learning Within or Across Sectors

Technology can facilitate "virtual regions" – communities of interest that cross geographic boundaries – particularly for small rural counties or any dispersed communities (New Teacher Center, 2009). These online communities can share resources, facilitate professional development and problem solving, and promote innovation. Numerous examples of such communities exist that are already linked to pathways. For example, NAF academies are part of both "real" and virtual networks. ACME Animation is an online community for animation students, educators, and professionals that allows for widespread virtual mentoring, networking, and discussion in an industry that is otherwise largely geographically restricted to a few select areas.

Technologically based or supported communities will be vital for the multiple pathways approach in connecting teachers across districts and schools with pathways in the same industries, especially for small rural districts. Online communities may also promote collaboration between educators and representatives in those industries (Fischer, 2001).

CHALLENGES

Challenges exist both within and across existing coalitions. The range of initiatives summarized here speaks to the diversity of the efforts to form and deploy coalitions in support of increasing student achievement. In many cases, however, these coalitions and partnerships are disconnected from one another. While many partnerships stress the importance of preparation for both postsecondary education and careers, not every collaborative brings both industry and all segments of education together to shape a common agenda. At the broadest level, the Little Hoover Commission warned that "the state lacks a strategy for connecting education with workforce development and economic development" (Little Hoover Commission, 2007).

In addition, expanding the multiple pathways approach requires sustained, coordinated efforts. Previous California efforts to connect education with workforce and economic development "showed early signs of success, only to fall by the wayside when leadership changed or when funding disappeared" (Little Hoover Commission, 2007). Often, collaboratives are formed in response to particular funding streams; even some ROCs and district-funded CTE programs have operated separately, despite their common mission, student base, and potential industry partnerships. When resources wane, collaboration then also ceases unless it has been institutionalized. Long-term systemic change is difficult to measure in the short term, which creates an incentive to take on projects that have immediate appeal, rather than those that may have longer-term impacts.

Collaboratives are difficult to manage effectively. The disparate organizational cultures, missions, and motivations of industry and education can hinder success unless efforts are made to promote mutual understanding in service of a common goal. In addition, employers are not always utilized in

meaningful ways and are not always provided a real voice in the development of programs, which can discourage their participation.

Locally, the multiplicity of advisory committees can create confusion for employers and dilute engagement efforts. As pathways expand, coordination – across pathways and across systems – will be necessary to avoid duplicative efforts. At the same time, the lack of funding and time for collaboration make employer outreach and nurturing of strong advisory boards very challenging – another reason to coordinate and leverage resources. Finally, school districts themselves must be organized to work effectively with employers and regional collaboratives.

CONCLUSION

Various types of coalitions, partnerships, and organizations exist to promote educational and workforce development efforts – many of which could promote the expansion of pathways. Large regional organizations and coalitions are critical to convening high-level leaders, promoting policies that would support the development of pathways, and coordinating program development. Industry associations provide important information on the skills and standards required in their industries. Counties offer important opportunities for leveraging and brokering resources and professional development, while organizations focused on the specific needs of certain students bring their expertise in tailoring or expanding programs to serve diverse student needs. Local chambers of commerce, partnerships, and advisory boards are foundational to building and sustaining pathways. Finally, “virtual coalitions” can be used to foster learning and pathway development across geographic areas.

The difficult work of creating and sustaining pathways will be supported to the extent that organizations and coalitions recognize and publicly promote a common vision of postsecondary and career opportunities for all students.

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Chapter 10. Teacher Recruitment, Preparation, and Professional Development

INTRODUCTION

The development and expansion of the multiple pathways approach in California requires that teachers – both across and within districts – possess a wide range of skills and competencies, particularly the ability to provide rigorous and challenging learning experiences and support along both academic and career trajectories. This chapter describes the key issues that need to be addressed to develop the teaching workforce that is essential to implement high-quality pathways statewide.

CALIFORNIA'S TEACHER WORKFORCE

Trends in the Teacher Workforce

In its most recent report on California's teacher workforce, the Center for the Future of Teaching and Learning (CFTL) stated, "Although the state has significantly lowered the number of underprepared teachers over the past several years, uncomfortable warning signs are appearing on the horizon regarding the continued supply of fully prepared teachers" (Guha et al., 2008). Underprepared teachers are defined as those who have not met all of the qualifications for the preliminary teaching credential. Because California has a large teaching workforce, the state will likely continue struggling to reduce the number of underprepared teachers. The report's key findings are summarized below:

- Student enrollment is projected to increase in the state's inland regions and in the elementary grades. Student enrollment is projected to be stable or decline along the coast of southern and northern California, and high school enrollment is projected to decline.
- Historically high retirements statewide are expected to contribute to a continued demand for teachers, but they will affect some northern counties more than others.
- Uncertain budget climates make it difficult for districts to determine staffing levels and can lead to large numbers of teachers receiving layoff notices, even though the notices may be rescinded later.
- Although districts are not always able to hire fully credentialed teachers for all of their positions, the population of underprepared teachers across the state continues to decline.
- Underprepared teachers are disproportionately concentrated in particular counties and regions, at the secondary level, and in special education.
- Underprepared teachers are also concentrated in the states' lowest-performing schools (Guha et al., 2008).

The CFTL reports that ten counties with the highest student enrollments (including Los Angeles, San Bernardino, and San Diego) employ the vast majority of underprepared teachers, but the smaller

counties with high student poverty rates (including Imperial, Yuba, San Benito, and Kings) have the highest percentages of underprepared teachers in the state (Guha et al., 2008).

REL West conducted a study of trends in teacher demand in California that aligned with CFTL's findings. The REL researchers examined current numbers of underprepared teachers, projected enrollment-generated demands for teachers, and projected teacher retirement-generated demand at the county and regional levels. The study concluded that California's Central Valley (northern and southern San Joaquin Valley and upper and Sacramento Metropolitan Valley) and Inland Empire (Riverside and San Bernardino counties) will have some of the highest demand for new teachers over the next ten years (White & Fong, 2008).

These findings are particularly relevant for *Multiple Pathways to Student Success*. As declining enrollment in high school impacts the demand for teachers, districts will be challenged to offer the courses, learning opportunities, and support necessary to meet the four components of the multiple pathways approach. Further, if the multiple pathways approach alleviates students' dropping out and improves their achievement, some of the districts that will need to most seriously consider implementation of pathways are those that are disproportionately impacted by higher numbers of underprepared teachers.

In addition, district administrators interviewed for this study indicated that hiring qualified CTE teachers is one of their biggest challenges with implementing pathways. This challenge includes the following difficulties: 1) hiring sufficient teachers who are qualified to teach in the CTE areas in which they are needed; 2) ensuring that both academic and CTE teachers are trained in work-based learning; and 3) ensuring that both academic and CTE teachers are cross-trained in curricular approaches that blend academic and career technical education. The struggle to attract, hire, and retain teachers in small and rural districts could also severely hinder implementation of pathways. In addition, ROCPS directors have challenges with hiring qualified teachers, because potential teachers from industry find it difficult and expensive to fulfill the requirements for entering the teaching profession.

Teacher Supply and Turnover

California faces a problem of teacher supply and turnover, and it is important to understand these problems as they apply to implementing the multiple pathways approach. Futernick (2007) notes:

If the state is not producing enough new teachers to keep pace with the number who are retiring, then it has a teacher *supply* problem. If, on the other hand, large numbers of teachers are leaving the profession before they retire, or are moving away from certain types of schools, the state has a teacher *turnover* problem.

He adds that while turnover does not reduce the overall supply of teachers, turnover creates vacancies that are *equally costly* to districts and schools in financial and educational terms.

The CFTL reported that California's budget crisis and the resulting preliminary layoff notices and negative media attention cause teachers to have concerns about job security, with the result that many experienced teachers leave the state to teach elsewhere, and new teachers look for out-of-

state jobs and leave after completing their in-state training programs. Further, the CFTL reported that California's budget crisis made the state a very attractive recruiting place for other states experiencing increased demand for teachers (Guha et al., 2008).

Issues of both teacher supply and turnover have been raised with respect to CTE teachers specifically. The challenges that exist in recruiting and retaining skilled teachers who have industry knowledge and technological expertise include:

- The low pay compared to the private sector
- An inadequate supply of qualified teachers
- An inadequate supply of credentialing programs
- An extensive credentialing process that deters professionals from other fields to become teachers (WestEd, 2006)

These themes related to teacher supply were echoed in responses from administrators and teacher educators interviewed for *Multiple Pathways to Student Success*. Common concerns included:

- The difficulties of acquiring a teaching credential in California
- The difficulties of finding qualified CTE teachers to teach the CTE courses
- The difficulties of professionals acquiring CTE credentials in California
- The differences between the pay scales of teaching and other professions
- The differences between the pay scales of school districts
- The need for greater flexibility with credentialing requirements

According to the CFTL, between 2001–02 and 2005–06, the most recent years for which data are available, the number of teachers enrolled in teacher preparation programs steadily declined. While the decline is largely due to decreased enrollment in multiple-subject credential programs, the numbers of single-subject credential candidates (those most frequently used for teaching at the secondary level) have remained relatively flat. The numbers for CTE teachers are even more dramatic. As recently as 2002, California had 42 university CTE teacher preparation programs in place. By 2009, CDE staff reported these programs had dwindled to 15 university CTE teacher preparation programs: five agriculture, two business, one health careers, five home economics, and two industrial technology education programs. Agriculture education is the only sector with a sizeable number of students; all others have a “handful” of students.

The difficulties in retaining faculty for part-time positions and the pressures for CTE teachers to be retained in order to keep pace with industry trends were also significant challenges to the availability of skilled CTE faculty in California (WestEd, 2006). The differences between the pay scales of school districts and the need for greater flexibility with credentialing requirements make it difficult to attract and retain qualified teachers. These challenges may impair districts' ability to find and hire the teachers needed to implement multiple pathways.

Finally, teacher shortages represent an equity issue, in that most frequently, small and rural school districts, and schools in urban districts with high concentration of students living in poverty and English learners are disproportionately affected by teacher turnover and teacher shortages. These same schools are also staffed with less experienced teachers. California has to continue to work to ensure the equitable distribution of highly qualified teachers through all districts and schools.

Special Concern: Science, Technology, Engineering, and Mathematics (STEM) Teaching Workforce

A discussion of the teaching workforce as it applies to the multiple pathways approach must include attention to the severe shortage of STEM-discipline teachers. The teacher shortage is symptomatic of the overall erosion of quality in mathematics and science education in California and across the country. The science and mathematics pipeline from elementary through postsecondary levels has decreased dramatically in recent years. The California Council on Science and Technology (CCST) and the CFTL predict that during the next decade, the demand for new science and mathematics teachers is expected to rise to over 33,000 people.

Gaston (2009) has noted three keys to improving the STEM teacher workforce in California:

- Create an adequate supply of STEM teachers, ensuring that students who make it through the pipeline and enter the teaching profession remain in California.
- Ensure that teachers have the subject-matter content knowledge and pedagogical skills to teach science and mathematics well.
- Distribute fully prepared, veteran, and accomplished STEM teachers evenly across schools and districts.

Additional ideas for actions that states can take to recruit STEM teachers include:

- Gather and analyze data to design and implement recruitment initiatives.
- Build strong and sustainable relationships with institutions of higher education.
- Develop differentiated pay systems and create financial incentives.
- Provide prospective teachers adequate information about teaching opportunities.
- Develop multiple entry points into teaching for nontraditional mathematics and science teacher candidates.
- Provide high-quality induction and professional development experiences (McGraner, 2009).

The CFTL and CCST launched the California Teacher Advisory Council in 2005. The council is modeled after a national program that convenes teachers, policymakers, business and industry representatives, researchers, and representatives of postsecondary institutions to consider systemwide approaches to improving the STEM workforce. Two themes emerged: the need for improved assessments of science and mathematics teaching and learning in the K–12 system, and the need for professional development to encourage inquiry-based learning (CCST, 2009).

The importance of the “pipeline” with respect to the STEM areas cannot be emphasized enough. It is vitally important that districts and schools provide instruction that supports all learning styles and capabilities at the elementary and secondary levels to enable more students to succeed in mathematics and science, with the ultimate goal that they will pursue postsecondary education and training in these areas. The state also has a part to play, by providing investments that will make such programs possible. The Mathematics, Engineering, Science Achievement (MESA) (<http://www.ucop.edu/mesa/home.html>) program engages thousands of educationally disadvantaged students so they excel in mathematics and science and graduate with math-based degrees. Many MESA students get exposed to teaching while tutoring younger MESA participants. According to MESA Executive Director Oscar Porter, “The majority of our students will still go directly to the industry workplace, but it is important they see teaching as another career option as they complete a STEM degree.”

Additional efforts to increase the number of STEM and CTE teachers in California include legislation enacted in January 2010 that authorized a new pathway under California *Education Code* Section 44227.2 – the STEM and CTE Educator Credentialing Program – to provide preservice training to teachers in fields that are critical to the state’s future. The legislation addressed recruiting, developing, rewarding, and retaining effective teachers and principals. Authorized providers for this new pathway include community-based organizations and non-governmental organizations, as well as the public education entities that are authorized as providers for alternative routes to STEM and CTE certification.

Credentialing Relief to Build the Teacher Workforce

Concerns with the overall decline in California’s teacher workforce have led to a number of provisions to streamline and ease the credentialing process. Senate Bill 1186 (Scott) provides an exemption from the California Basic Educational Skills Test (CBEST) to individuals whose scores on the CSU Early Assessment Program were sufficient to waive their CSU placement test requirements in English and mathematics.

Senate Bill 1209 (Scott), passed in 2006, contained the following provisions:

- Streamlining testing requirements for prospective teacher candidates
- Making it easier for teachers credentialed outside of California to earn a California credential
- Providing alternatives to the CBEST
- Calling for a review of several exams to evaluate the feasibility of reducing the number of exams candidates are required to pass

Additional legislation to ease the CTE credentialing requirements includes SB 1104 (Scott), which modified the requirements for the preliminary and professional clear CTE credentials, making it easier for career professionals to become teachers. Senate Bill 52 (Scott) changed the vocational education credential. Senate Bill 57 (Scott) waived the requirements for completion of a program of professional preparation for persons with at least six years of full-time teaching experience in an accredited private school in the subject and level of the credential being sought. The Designated Subjects Credential includes the CTE (formerly the vocational education) credential, among others.

Under the new standards, those seeking a Designated Subjects CTE Credential must have at least a high school diploma and three years (reduced from five) of recent industry experience. The California Commission on Teacher Credentialing (CTC) was also required to establish a list of authorized subjects for the Designated Subjects CTE Credential that reflects the 15 industry sectors identified in the CTE model curriculum standards. The new standards are currently in place, and all programs must begin to transition to the new requirements. Programs using the old standards may not accept new candidates after August 2010.

There are two key differences between credentialing requirements for those seeking a Single Subject or Multiple Subject Credential and those seeking a Designated Subjects CTE Credential. The Single and Multiple Subject Credentials require at least a BA degree, passage of a subject matter examination or completion of a subject matter program of coursework, completion of a teacher education program, and participation in an induction program. Those seeking a Designated Subjects CTE Credential need a high school diploma, three years of industry experience, and completion of a teacher education program, with no requirement (and no prohibition) to participate in an induction program. These differences contribute to the divide that exists between "academic" teachers and "career technical" teachers. In *Actions States Can Take to Place a Highly Qualified Career/Technical Teacher in Every Classroom*, the authors write:

States should expect all career/technical teachers to meet the same academic standards as other teachers prior to earning a professional certification. A solid academic foundation is essential if career/technical teachers are to develop learning experiences that prepare students for continued learning at work and in educational settings. This would include meeting the same standards on academic exams required of other teachers and either having or acquiring a bachelor's degree within five years. Preparation systems need to include Web-based learning opportunities and ways to translate occupational credentials into credit toward a bachelor's degree (Bottoms & McNally, 2005).

According to the CDE, 75 percent of California teachers in ROCP have a Designated Subjects Credential, and of those, 50 percent have college degrees. To increase the number of teachers with CTE credentials, the CTC is currently finalizing regulations to allow teachers holding a clear Single or Multiple Subject Credential to acquire a Designated Subjects Credential if they have two years of industry experience in one of the 15 industry areas and at least one year of teaching experience. Teachers are not required to acquire the two years of industry experience in one position but may accumulate it over the last five to ten years.

These changes are expected to help increase the number of persons seeking teaching credentials. However, given the expected shortages of teachers with CTE credentials, additional streamlining of the California teacher credentialing process is needed. One additional option to consider is designing a teacher preparation program that allows students to acquire a Single or Multiple Subject(s) Credential, or Designated Subjects Credential within a baccalaureate program.

Teacher Internship Programs/Alternative Pathways

Since the Teacher Education and Internship Act of 1967, California has had a long history of supporting alternative routes to prepare and certify teachers and principals. Currently, the state has almost 70 teacher and 40 administrator intern programs. The state's routes to teacher certification derive from educational reform policies that are based on three fundamental and interrelated mechanisms promoting innovation and accountability: (1) participant choice, ensuring pathways for individuals to demonstrate or receive rigorous preparation and earn certification; (2) local control, supporting counties, school districts, and private entities to develop preparation and certification activities and programs to meet local needs; and (3) high standards, requiring regulatory oversight to ensure that all programs are rigorous, and every credentialed individual is prepared to be an effective educator. As a result, California currently has multiple program types with numerous providers, each of which meets all or most of the five required elements of the definition for "alternative routes to certification."

California has also increased teacher internship programs over the last several years; the number of interns has increased by over 400 percent (from 1,471 in 1995–96 to 7,962 in 2008–09) (CTC, 2009). At this time, California is one of only three states designated by the National Center for Alternative Certification (NCAC) as having the "most prolific alternate routes" (NCAC, 2007).

In addition to legislation that eases the credentialing requirement, nontraditional teacher preparation programs are important and can prepare teachers to work effectively in pathways.

Recruitment and Retention of Teachers for Pathways

Recruitment and low compensation are challenges to recruiting and employing qualified teachers, particularly for CTE classes and pathways. Recruitment is largely left to local school districts. However, the state can take actions to support districts with recruiting and retaining qualified staff. Recent changes in California's credentialing requirements have made it easier for out-of-state teachers to obtain credentials to teach in California, but the state can do more. It can become proactive to increase the availability of qualified teachers by developing a recruitment approach that identifies potential candidates from high school and community college students, career changers, and retirees from the military and other sectors (Bottoms & McNally, 2005).

Several ideas for states to address teacher recruitment include:

- Create programs that promote the profession to high school and college students or community members, such as programs in Illinois; Aurora, Colorado; and the Prezell R. Robinson Scholars Program, available only in low-wealth systems in North Carolina that have difficulty recruiting qualified teachers.
- Establish outreach programs for college students and experienced professionals with expertise in mathematics, science, and foreign languages, such as the UTeach Natural Sciences Program at the University of Texas, Austin.
- Use Web site videos, ad campaigns, and statewide conferences to promote the teaching profession (Hayes & Behrstock, 2009).

In addition, California, along with every state, must address the inequitable distribution of highly qualified teachers, which is largely an issue of retaining teachers who are already in service.

Thinking Systemically: Steps for States to Improve Equity in the Distribution of Teachers includes recommendations for states to improve teacher retention by redistributing highly qualified teachers:

- Create incentives (monetary and non-monetary) to attract and retain teachers and school leaders in hard-to-staff schools.
- Redesign job responsibilities to better align with teachers willing to teach in hard-to-staff schools or shortage subject areas, including job-sharing and part-time positions for retired or semi-retired teachers.
- Increase the local supply of teachers.
- Improve new teacher induction and professional development to increase teacher qualifications and enhance teacher quality.
- Redesign teacher professional development and school schedules so learning opportunities are job-embedded, collaborative, data-driven, and focused on student instructional needs.
- Consider compensation reform – reward factors related to contribution and effectiveness.
- Ensure a fair and reliable teacher evaluation system (National Comprehensive Center for Teacher Quality, 2009).

Teacher Data Systems

Efficient and accurate systems to assess changes in the teacher workforce, distribute highly qualified teachers equitably, and reform teacher compensation structures and plans will require data about teachers. California needs systems to manage, retrieve, and analyze data on students, teachers, and administrators. Further, the state will need training for staff to verify and use the data.

The California Longitudinal Pupil Achievement Data System (CALPADS) includes statewide assessment data, enrollment data, teacher assignment data, and other elements required to meet federal NCLB reporting requirements. The California Longitudinal Teacher Integrated Data Education System (CALTIDES) provides data for monitoring teacher assignments as required by the Highly Qualified Teacher provisions of NCLB.

CALPADS will include student demographic, program participation, grade-level, enrollment, course enrollment and completion, discipline, and statewide assessment data. CALPADS will also include teacher assignment data and will be linked to teacher credential and authorization data in CALTIDES that is from the CTC. The student-level, longitudinal data in CALPADS will facilitate program evaluation, assessment of student achievement over time, the calculation of more accurate dropout and graduation rates, the efficient creation of reports to meet state and federal reporting requirements, and the ability to create ad hoc reports and respond to questions. CALPADS provides local educational agencies (LEAs) access to longitudinal data and reports on their own students, and immediate access to information on new students.

PRESERVICE TEACHER EDUCATION/PREPARATION PROGRAMS

Successful pathways implementation will require teachers working hand-in-hand with administrators and counselors to provide instruction, guidance, and support to students in academic and CTE courses, and in work-based learning. Except where there is a reference to specific *content* that either academic or CTE teachers may need, the following discussion makes no distinction between academic and CTE teachers, since most components of high-quality preparation, professional development, and support apply to all educators.

Teacher Preparation Programs

Teacher educators are considering ways to improve teacher preparation programs. Whittington describes seven important themes for a new model of teacher preparation drawn from research on effective preparation for teachers in career technical education:

- Teacher educators must serve as role models, modeling the knowledge, skills, and dispositions of a competent and compassionate teacher.
- Teacher preparation programs should be implemented and evaluated based on knowledge about what teachers need to know to be effective that is consistent throughout the nation.
- Teacher preparation programs need to shift from colleges to clinical learning.
- Teacher educators should conduct collaborative planning and teaching to model integration and improve articulation across teacher preparation courses and experiences.
- Teacher preparation programs should form two-way partnerships.
- Technical, pedagogical, and professional knowledge need to be integrated with technical and general education courses.
- Teacher educators need to create collaborative teaching and planning teams across departments and colleges (Whittington, 2005).

Another consideration for improving teacher education programs is to bridge the divide that currently exists between what academic and CTE teachers need to know. Oakes writes, "Prospective CTE teachers in Multiple Pathway programs need preservice academic preparation in mathematics, technology, science, language arts and social sciences. Similarly, prospective academic teachers in Multiple Pathway programs need preservice preparation in the relationship between academics and their application in the world of work. Teachers who complete conventional preservice programs are very unlikely to have the expanded competencies needed in Multiple Pathways schools" (Oakes, n.d.).

The California SB 2042 (Alpert) standards for teacher preparation prescribe what teachers are to know and be able to do, but the standards have no specific provisions for preparing teachers to work in pathways. Preparation to teach effectively in a pathway requires additional competencies not found in the typical teacher education programs, and teacher educators need to understand the multiple pathways approach.

Oakes and Saunders are two widely recognized education researchers who have written extensively on academic success for underrepresented and underserved students and effective pathway programs. Their recommendations have formed the basis for two California teacher preparation programs focused on preparing teachers to teach in pathways (Oakes & Saunders, 2008).

Skills and Competencies Addressed in Teacher Preparation for Pathways

Oakes explains that teachers in pathways need to have competencies in four domains: knowledge, pedagogy, professional skills, and foundational comprehension. Teachers need knowledge of the academic concepts that underlie work in industries, intellectual skills to solve problems in the real world, and knowledge of how to work in a community of practice. They also need pedagogical skills that include how to engage students in project-based and cooperative learning, building on students' prior knowledge and skills, and using multiple assessment measures and ways for students to demonstrate their competencies. Teachers must have appropriate professional skills that equip them to work in pathways, including how to collaborate with other teachers and industry partners (Oakes, n.d.).

The SB 2042 standards include teacher preparation expectations (TPEs), and the profession reinforces these standards. However, according to teacher educators, these standards do not address all of the necessary competencies for pathway teachers.

For example, San Diego State University is partnering with ConnectEd; California State University, Fresno; California State University, Sacramento; and California State University, San Bernardino to develop a preparation program for teachers in the multiple pathways approach. "Core proficiencies" refer to competencies that teachers in pathways should have, but typically do not receive in teacher preparation programs, and CTC does not require these competencies. Working with pre-baccalaureate students, the San Diego program adds a "multiple pathways lens" to the Single Subject Credential. The core proficiencies match the TPEs, but they also include proficiencies that go beyond the TPEs, making up those skills that teachers need for pathways. The core proficiencies for this lens are divided into content knowledge, curricula design, practice pedagogy, and philosophy. A key feature of the program is that student teachers will be placed in pathway schools and programs for their practicum (see following box).

The Teachers College of San Joaquin, housed at the San Joaquin County Office of Education, is also preparing teachers to work in pathways. Its graduate program offers a core set of curriculum related to the multiple pathways approach for each of the three MA degree concentrations – educational inquiry, educational leadership and school development, and advanced teaching practice for teachers seeking National Board Certification. All candidates, K–12, multiple subject, single subject, and CTE teachers, as well as future administrators, take coursework specifically designed to develop the knowledge, skills, and abilities for a multiple pathways approach to teaching and learning. Teachers actively participate in labs where they work collaboratively to learn how to prepare students for their future, college, and/or career. In addition, this program works with teachers to acquire a "dual credential" for those who have BA degrees and are interested in a Single Subject Credential and have the necessary work experience to qualify

Teacher Preparation Expectations and Core Multiple Pathways Competencies

Philosophy

- Teachers will understand, appreciate, and operationalize the following in their professional practice:
 - Equity (TPEs 4, 5, 6, & 7)
 - Diversity (TPEs 7 & 11)
 - Intra-disciplinary and inter-disciplinary cooperation and collaboration*
 - Innovation*
 - Industry and postsecondary education partnerships*
 - Focus on learning vs. focus on teaching (TPEs 2, 3, 4, 5, & 8)
 - Willingness and ability to assume leadership roles (TPE 12)
 - Importance of a personalized learning environment where each student is known well by adults and his or her learning needs are known and supported (TPEs 8 & 11)
 - Ongoing professional learning, including industry specific orientation (TPE 13)

Core Areas of Proficiency

- Teachers will demonstrate the following *content knowledge* related to:
 - Disciplinary academic standards (TPEs 1 & 9)
 - CTE standards (structure, goals)*
 - Information management and technology*
 - Collaborative classroom structure and operations*
 - Work-based-learning approaches*

Career exposure and development*

- Teachers will be able to *design curricula* that:
 - Reflect interdisciplinary/integrated problem- and project-based structure and content*
 - Meet the California a-g requirements with respect to course structure and content (TPEs 1 & 9)
 - Address state academic and CTE standards (TPEs 1 & 9)
 - Incorporate skills from the Secretary's Commission on Achieving Necessary Skills (SCANS) Report*
- Teachers will *practice pedagogy* that:
 - Incorporates industry-based applications*
 - Reflects a student-centered teaching approach (TPE 2, 4, 5, 6, 7, & 8)
 - Emphasizes integrated problem/project-based learning*
 - Includes differentiated instruction (TPEs 4, 5, 6, & 7)
 - Demonstrates a research-based instructional model*
 - Utilizes information provided by formative and summative assessments (TPEs 3 & 8) (San Diego State University & ConnectEd, 2009)

For more information on TPEs, see pp. 41–56 at <http://www.ctc.ca.gov/educator-prep/standards/CTE-Handbook.pdf>.

* The additional areas of competence that San Diego State has identified for pathway teachers.

for a Designated Subjects CTE Credential. An example of content covered in some of the coursework includes:

- Change theory and how it applies to the context of multiple pathways
- CTE and California academic content standards for grades seven through twelve
- Models of integrating CTE and academic curriculum
- Articles from the “Multiple Perspectives on Multiple Pathways” series
- Developing partnerships with business and industry and writing grants
- Characteristics of effective leadership
- Equity and access for all students
- Visiting local academy programs
- Reviewing the SCANS skills needed for employment
- Action research

These programs provide a model to develop more teacher credentialing programs that prepare administrators, teachers, counselors, and other support personnel to work effectively in pathways.

PROFESSIONAL DEVELOPMENT IN PATHWAYS

A number of reports have described the characteristics of professional development that will promote teachers' ability to implement the four components of the multiple pathways approach. The term “multiple” is meaningful because multiple avenues are needed to provide teachers the opportunities to learn the competencies and skills to teach effectively in pathways. Three primary categories of professional development are induction programs, ongoing professional development, and externships.

Induction Programs

New teacher induction programs are addressed first because they provide a “bridging function” between preservice teacher preparation and in-service professional development for novice teachers. The teaching profession has been described as the only profession in which novices are completely left to “sink or swim” in their first year(s) of service (Lortie, 1975). Over the years, recognition of how this lack of support for beginning teachers fails both teachers and students has led to efforts to provide substantive support for teachers and to eliminate the isolation that new teachers face.

The Beginning Teacher Support and Assessment (BTSA) program is California's state-funded program to support the professional development of newly credentialed, beginning teachers. California established standards to guide the design and implementation of teacher induction programs, including the *Induction Program Standards*, (June 2008); the *Preconditions for Approved Induction Programs*, adopted in August 2008; and the *Updated Common Standards* (November 2008). According to California *Education Code* 44259(c) districts, county offices, and postsecondary

institutions may offer induction programs, but these programs must meet the quality standards. It should be noted that BTSA programs are now subject to Tier III categorical flexibility, and funding for BTSA programs may be used by districts for other purposes not related to the development of newly credentialed, beginning teachers.

All California teachers seeking the clear Single Subject and Multiple Subject Credentials are required to participate in a teacher induction program. BTSA provides the primary means for teachers to meet this requirement. However, teachers earning the Designated Subjects Teaching Credential, such as the CTE credential, are not required to participate in an induction program. A 2007 BTSA evaluation report made no mention of including CTE teachers in the BTSA program; however, CTE teachers could benefit from a strong induction program like the BTSA program.

The lack of support for beginning CTE teachers was noted in the CTC report to the Legislature and the Governor on CTE in response to SB 52 (Scott). The CTC recommended some major changes to the CTE program framework:

Historically, no formal supervision or support has been required for new CTE teachers. The draft standards define and require a support model consistent with both student teaching supervision and new teacher support to ensure that candidates have multiple opportunities for critical feedback on their practice and mentoring from a skilled colleague...This support model has proven effective for other new teachers, and it is imperative that CTE teachers receive similar support and supervision (CTC, 2008).

Bottoms and McNally state that every CTE credential candidate should “complete a multiyear induction system that includes orientation, continuum of professional development, teacher study groups, mentoring with a master teacher, and opportunities to observe and model effective teaching practices” (Bottoms & McNally, 2005). They characterize a strong CTE teacher induction program as one that includes:

- Initial induction of at least five days prior to the start of school
- Administrative support to participate in planned professional development over two years
- Frequent opportunities for networking and support through professional learning communities
- Mentoring by a trained teacher
- Opportunities to model effective teaching practices and receive feedback
- Frequent visits to other classrooms to observe effective teaching practices

The New Teacher Center at UC Santa Cruz is recognized for its innovative and effective programs to support new teachers. It suggests quality induction has the following components:

- Program vision seeking to promote the highest quality of instruction possible, creating new professional expectations, setting high standards, and creating the supports that teachers need to reach those levels of accomplishment

- District priority on teacher learning, with adequate time and resources for new teacher learning and mentor development, policies that protect new teachers during induction, and teacher development that is central to educational reform
- Quality mentoring with carefully selected mentors, and support for the mentors to be able to mentor new teachers effectively
- Standards of professional practice that are essential to both the novice teacher and the mentor
- Teacher learning that is in the classroom context and allows time for observation, collaborative lesson design, modeling, reflection, analysis of student work, goal setting, and assessment against professional standards (Moir & Gless, 2001)

Ongoing/In-Service Professional Development

Student achievement does not significantly improve when improvement efforts neglect to provide teachers the support they need to teach effectively in new environments (Bernstein et al., 2008; American Institutes for Research & SRI International, 2005). Explicit attention to the professional development of teachers is absolutely necessary. Implementation of the four key components of a pathway represents a significantly different way of providing secondary schooling for students. Effective pathways require teachers to integrate academic and career technical education, incorporate technology, teach twenty-first century skills in the context of their pathway and subject matter, facilitate project-based learning, and build bridges between school and work. Each of these areas requires sophisticated skills that are new for many, if not most, teachers. Teachers can learn these skills, but they must be given time and support to do so. Research has demonstrated that for teacher practice to positively impact student outcomes, professional development must be sustained and intensive, connected to practice, focused on specific academic content, and promote teacher collaboration (Darling-Hammond, 2009; Yoon, 2007). Saunders and Chrisman state:

When they enter teaching, few teachers expect to work in the innovative structures that characterize Multiple Pathways. Neither traditional academic nor CTE pedagogies are up to that challenge, and teachers must learn new ways of integrating academic and vocational knowledge (Saunders & Chrisman, 2008).

The impact of the teaching workforce on implementation of high-quality instructional programs should not be underestimated. Coherence, collaboration, and supportive professional environments are key factors that promote high-quality implementation of pathways. Academic and CTE teachers should learn and grow together. Teachers and industry partners should share professional development experiences to foster the collaboration that is necessary for implementing pathways. Teacher induction programs must include novice and master teachers, experts on various content areas, and industry partners interacting to reflect on new and traditional practice (Saunders & Chrisman, 2008).

In addition, pathway teachers need opportunities to learn in the workplace to stay current on industry skill requirements *and* effective instructional strategies (WestEd, 2006). Opportunities to learn in the workplace are usually described as teacher externships. Specifically, professional

development for teachers should address content similar to that being offered to teachers who are being prepared to work in pathways, including:

- Change theory and how it applies to the multiple pathways approach
- CTE and California grades seven through twelve academic content standards
- Models of integrating CTE and academic curriculum
- Developing partnerships with business and industry and writing grants
- Reviewing the SCANS skills –skills needed for employment
- Effective instructional strategies that support integration of academic and CTE content
- Effective use of multiple assessments

An example of a professional development program that addresses the needs of teachers in pathways is the Ford PAS program. The Ford PAS program and curriculum link classroom learning to the real-world, establishing school partnerships with local businesses and higher education institutions. Ford PAS offers an active technical assistance program for teachers and coordinators and delivers trainings and professional development. Because the Ford PAS curriculum is innovative in its interdisciplinary content, focus on twenty-first century skills, use of inquiry- and project-based teaching, integration of technology, and reliance on community participation, professional development is especially important. Ford PAS offers a variety of professional development opportunities for educators to renew, update, and advance their pedagogical and content knowledge and skills in these areas. The Ford PAS professional development program includes both online and in-person components (<http://www.fordpas.org/about/PD.asp>).

Externships

Since one of the essential components of a pathway is the provision of work-based learning for students, teachers who will facilitate the work-based learning must be knowledgeable of the occupation or industry associated with the learning experience. For those teachers who do not have industry experience, teacher externships are valuable (Stasz & Stern, 1998; ConnectEd, 2008; WestEd, 2006). Saunders and Chrisman note:

Pathway teachers also need opportunities for learning and support outside of school-based professional development activities. Alternative learning sites allow teachers to understand the application of academic knowledge in workplaces and other settings, as well as to understand the full range of career settings, and the full range of career possibilities in various industries and institutions. This understanding occurs both in the context of their out-of-school learning experiences and as teachers engage one another in making meaning out of their experiences in these alternative sites of learning (Saunders & Chrisman, 2008).

The Alameda Unified School District has a teacher externship program, which provides guidelines for both teachers and employers. The program connects “the classroom to the world of work through the broad curricular eyes of educators from participating high schools” (Alameda Unified School District, 2002). The district program represents a partnership between employers and teachers. Teachers are given first hand workplace experience to prepare them to plan instruction that is applicable to the workplace. Participating employers are expected to share with educators what they expect in employees, and employers have direct input into the curriculum. They are also encouraged to serve as mentors, speakers, and participants in the Principal for a Day program.

In Alameda, teachers spend five days in the company related to their fields of instruction. They are required to develop a classroom project that includes such things as job shadowing, field study, or service in the company for students. The teachers present their lesson plans and projects describing how they will apply in the classroom what they have learned during their externship.

Often teachers have little to no knowledge of industry and lack understanding of how the culture of industry differs from schools and how industry operates differently from schools. In addition, teachers may lack the understanding of how to integrate academic and career technical skills in teaching their students. Externships are a key, but not the sole strategy, for helping teachers to develop the competencies to better integrate academic and career technical content.

The Industry Initiatives for Science and Math Education (IISME) is another example of teacher externships. IISME is a consortium of companies, research laboratories, and government organizations in the San Francisco Bay Area that provides summer fellowships to teachers within their workplaces, and each teacher is provided a mentor. In addition, supports are provided to teachers during the year to help transfer what is learned in the summer to the classroom. Eighty-seven Bay Area institutions have provided 900 mentors to 512 teachers from 252 schools since 1985 (National Academy of Sciences, 2005a).

The IISME program is part of the Scientific Work Experience Programs for Teachers Network. The programs are independent of each other, but share a goal of providing hands-on immersion experiences to science, math, and technology teachers to improve the quality of education in those disciplines (National Academy of Sciences, 2005b).

TEACHER EVALUATION

Ultimately, the effective implementation of pathways will require teachers that demonstrate competence in the areas that have been identified as essential for high-quality pathway programs. Currently, to support teacher and leader evaluation, state law requires the use of student achievement data in evaluation under California *Education Code* sections 44660–44665, and recent legislation clarified that student growth data associated with individual teachers and principals can be used in teacher and principal evaluations.⁵⁰ Current law also encourages the use of alternative compensation at the local level “that reward[s] teaching excellence, exceptional

⁵⁰ See description of California *Education Code* Section 10601.5 in Eligibility Priority B.

achievement or the assumption of additional educational responsibilities" under California *Education Code* Section 44667.

Many California LEAs have adapted the *California Standards for the Teaching Profession* for use in teacher evaluation. At the state level, California has a system of peer review called, Peer Assistance and Review, which was established in 1999 to pay master teachers to help their colleagues overcome unsatisfactory ratings on their personnel evaluations by improving their instructional practices.

A 2007 CFTL study suggested weaknesses in California's typical teacher evaluation process, including unreliability and infrequency of teacher observations for evaluation, overemphasis on classroom management, and an under-emphasis on student outcomes. Addressing these weaknesses would improve teacher evaluation procedures at the local level. Ultimately, improved teacher accountability would strengthen the implementation and effectiveness of the multiple pathways approach.

CONCLUSION

Successful implementation of pathways will require sufficient numbers of CTE teachers and teachers in the academic disciplines. Recent efforts to improve the teacher credentialing process are important steps in increasing the number of teachers who are available to work in pathways. Moreover, innovations in teacher preparation programs; expanded induction programs that include expanding the competencies that teachers are expected to have; and professional development *that* supports the integration of CTE and academic courses, including direct experience in industry, are all necessary steps that must be continued.

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Chapter 11. Administrator and Counselor Recruitment, Preparation, and Professional Development

INTRODUCTION

Effective administrative leaders and school counselors are crucial to the development of the multiple pathways approach. This chapter addresses some of the key issues in the preparation and professional development of administrators and counselors. The chapter discusses the skills and competencies necessary for administrative leaders and counselors in pathways.

ADMINISTRATIVE LEADERSHIP

Administrator Demographics

Although California has a fairly large administrative workforce (27,846 in 2008–09), little is known about this group's characteristics (CDE, 2009). California administrators include superintendents, principals, and superintendent/principals (EdSource, 2007). Of these, approximately 60 percent are female, and 40 percent are male.

Drawing California data from a nationwide study on administrators conducted by Darling-Hammond and Orphanos, the Center for the Future of Teaching and Learning (CFTL) released a report on California school principals in February 2009. Of the 1,086 elementary and secondary principals the authors surveyed, 189 were from California. The responses of the California principals were similar to those of principals across the country. They had typically 15 years of prior teaching experience (14 nationally), 58 percent had served as assistant principals (59 percent nationally), and across the country elementary principals were more likely to be women, and secondary principals were more likely to be men. The report states that only 22 percent of the high school principals in California plan to stay in their jobs until retirement (Darling-Hammond & Orphanos, 2007).

Currently, there are no comprehensive studies of California's administrator workforce. In certain areas of the state, the student enrollment rates are increasing, while at the same time, the current "baby boomer" administrator workforce is aging and moving closer to retirement. Therefore, *potentially* at the time more administrators will be needed in certain counties due to increasing enrollments, higher rates of administrators will be leaving the workforce due to retirement.

The Administrator's Job in California

Leadership is a balancing act for both superintendents and principals; they must be business managers, community leaders, and instructional leaders, holding themselves and others accountable for student success. Tension exists between leading to fulfill a vision (long-term) and managing day-

to-day operations (EdSource, 2007). The National Governors Association (NGA) describes three modes of principal leadership: the entrepreneur, the organizer, and the instructional leader. The entrepreneur develops and sustains a focus on instructional improvement and student learning while protecting teachers from external intrusions. The organizer brings innovative individuals, ideas, programs, and strategies to improve teaching, along with engaging parents and community, into a coherent effort. The instructional leader builds data-driven communities that hold all individuals accountable for student learning and instructional improvement, using time and resources for teacher professional development (NGA, 2003).

The CFTL describes the job of California principals as tough and getting tougher: "To function as effective leaders, principals must be much more than able fiscal and operations managers. They must be able to recognize, shape and support strong instruction and to develop the kinds of organizations that create a culture of learning for students and teachers alike" (CFTL, 2009).

Darling-Hammond and Orphanos (2007) write that the demands on principals are greater in California than in other states because of high pupil to staff ratios, less support from their districts, the high cost of living coupled with low per-pupil expenditures, and lower staffing levels requiring principals to "wear many hats." California principals may also be challenged with serving more students living in poverty and English learners, who are seriously at risk of academic failure if they do not receive substantial help. More and more, principals are being called upon to lead significant reform efforts, and many report feeling underprepared to meet these challenges (Darling-Hammond & Orphanos, 2007). Required testing and API performance measures, especially in underperforming schools, result in great pressure on school principals. Implementing pathways is no exception, and it will require principals to work differently and, in some cases, to take on new responsibilities.

Skills and Competencies Necessary for Leaders of Pathways

Successful implementation of the multiple pathways approach will require administrators, teachers, and counselors who are prepared to provide instruction, guidance, and support to students in academic courses, in CTE courses, and with work-based learning. The *California Professional Standards for Educational Leaders* (CPSELs) includes a provision for candidates to know how to strengthen the school through community, business, institutional, and civic partnerships (ACSA & the California School Leadership Academy, 2001). To implement pathways, administrators need to understand networking and collaborating with industries and businesses in their communities. The current credentialing programs may not go far enough to adequately prepare administrators to work in pathways.

While it is commonly accepted that all administrators need to be leaders committed to high-quality, rigorous instruction, an added dimension of instructional leadership is of particular importance to implement the multiple pathways approach. Administrators must master content knowledge in specific subject matter and the pedagogy needed for students to learn the subject matter (Stein & Nelson, 2003). Administrators of pathways must be committed to and understand how to bridge the divide that traditionally exists between career technical content and academic content. The successful administrator must understand the value of theory and application in both domains and how they add value to each other when integrated.

Further, district administrators need to know how principals and teachers learn in order to provide an effective organizational environment that supports teachers and others to work collectively, and to learn from one another. Thus, the instructional leader in pathways has to provide the collaboration time, structures, and strategies for academic and CTE teachers to work together and participate in professional development.

The successful administrator of pathways must collaborate with industry, labor, business, and postsecondary education partners to design programs and provide internships for students. The administrator should model strategies for engagement and collaboration by engaging students, parents, and the community; and fostering collaboration among teachers.

In its work on the multiple pathways approach, ConnectEd has defined a fully developed pathway as having leadership that is shared across a team consisting of the principal, program director, teachers, and business and community partners. The leadership team is expected to collaborate effectively in planning, implementing, and sustaining the pathways. In addition, leaders should be motivated to develop and maintain high-quality pathways (LaPlante & Stearns, 2008).

For example, Mt. Diablo Unified School District participates in the Contra Costa Workforce Development Task Force, a county collaborative that is integral to its multiple pathways approach. The task force provides speakers and sponsors a business-education collaborative. Mt. Diablo administrators consider this collaborative an important resource for preparing district and school administrators, as well as teacher leaders, to work effectively in pathways. Its staff meets regularly with a countywide group of educators, bringing back what they have learned to their respective sites within the district. Mt. Diablo views this resource as helping it create a sense of urgency to improve its high schools, building a shared vision, and informing parents. Regular meetings of the principals with district administrators are a key strategy for moving the district forward.

Administrator Preparation

While leadership is critical to successful pathways, as it is for any educational program, no specific preparation programs are available to district administrators or high school principals for implementing pathways (Grubb, 2008). Credentialing for California administrators involves an initial preparation or preservice program that includes coursework and field experiences. It also includes two years of participation in an induction program or on-the-job training. In addition, professional development for credentialed administrators is limited.

Induction. Conventional wisdom suggests that support for beginning administrators is desirable, yet there is little research demonstrating what types of learning opportunities enable principals to become more effective. Induction for administrators is mentioned in the *CTC Standards of Quality and Effectiveness for Administrative Services Credentials*. However, these standards leave the design of the induction to the candidate, the credential supervisor, and a district mentor. Specifications are not provided. The standards allow excellence to assume different forms in different environments, and the judgment of whether a program meets the standards is left to professionals trained to interpret them.

In California, the New Administrator Program (NAP) is one induction option for first- and second-year principals. NAP is a joint project of the New Teacher Center at UC Santa Cruz in partnership with ACSA. The New Teacher Center also trains principal coaches through the Coaching Leaders to Attain Student Success program.

Another induction option for new principals is the Educational Leadership Development Academy (ELDA) in the School of Leadership and Education Sciences at the University of San Diego. ELDA was created in partnership with the San Diego Unified School District and funded by the Eli Broad Foundation. The ELDA New Leaders Program provides coursework and support for site leaders who are in their first or second year of school administration. Novice administrators take university coursework, and each student has a mentor who supports, guides, and counsels him or her through the critical early years of administration. Mentors and the novices meet regularly to discuss instructional and operational issues and to strengthen practice. Coursework in the New Leaders Program is aligned with the *CPSELs*.

The induction programs do not provide an explicit emphasis on preparing these administrators to work effectively in pathways or integrate CTE approaches (Davis, Darling-Hammond, LaPointe, & Meyerson, 2005).

The CTC will convene an advisory panel of school administrators in July 2010 to begin studying and discussing the role of the school administrators. The panel's work will be used to develop standards for credentialing programs for school administrators, and it is expected to address CTE, among other topics.

Ongoing Professional Development for Administrators

There is a need for *leadership* development for principals and other administrators to be effective in pathways. Strong leadership development programs provide:

- Research-based content focused on learning, quality instruction, professional learning, organizational development, data analysis, change management, and leadership skills
- Curricular coherence that links goals, learning activities, and candidate assessments based on standards for leadership competence
- Problem-based learning methods that connect theory and practice, and teach both problem-framing and problem-solving techniques
- Cohort groups that encourage collaboration and teamwork
- Collaboration between the program and school districts so the program is linked to the school's efforts
- Field-based internships or coaching that connect intellectual and practical work under the guidance of a coach who can model, guide reflection, and provide feedback (Darling-Hammond & Orphanos, 2007)

Similar characteristics of high-quality professional development for principals were outlined by the NGA (NGA, 2003) and included:

- Focus on student learning and the specific problems practitioners face.
- Reinforce and sustain group work and collaboration among teachers, principals, and district personnel.
- Link directly with day-to-day work in schools and classrooms.
- Sustain a consistency of focus over time.
- Use feedback from teaching and learning to inform program development and evaluation.

Darling-Hammond and Orphanos (2007) discuss the limited professional development available for California school administrators. For the most part, principals must pay for their ongoing professional development. The primary professional development program the state sponsors is AB 430 (Nava), Administrator Training Program, for school principals and vice-principals to administer the state-approved curriculum. Now in Tier III flexibility, this program is voluntary, except for principals and vice-principals who work in schools identified for state intervention for improvement.⁵¹ This training does not address helping principals implement pathways.

The California School Leadership Academy (CSLA), a successful state resource and program for training administrators, was nationally recognized for its quality. Other states have adapted the CSLA model, but the California program has been eliminated (Darling-Hammond & Orphanos, 2007).

ACSA recommends additional state-level funding for local professional development programs for teachers, counselors, and administrators; and expansion of the Beginning Teacher Support and Assessment program to include CTE, incentive funding for local CTE planning, and the development of CTE internships. In addition, ACSA recommends that a CTE component be added to professional development programs for administrators (ACSA, 2008). It is important to note, however, that these programs are all impacted by Tier III flexibility.

The Integrated Leadership Development Initiative (ILDI) is a collaborative of CDE, CTE, the California County Superintendents Educational Services Association, ACSA, California's public and private universities, California Association of Professors of Education Administration, CFTL, and WestEd. ILDI is focused on developing effective school and district leadership in California, and has just released *Effective Principals for California Schools: Building a Coherent Leadership Development System* (Kearney, 2010). The document suggests a continuum of career stages, with related system support for principals to develop their capacity to successfully lead schools over the course of their career. It examines each stage of the leadership development continuum, providing related research, best practices, and any relevant information from earlier state task force reports and the collective years of on-the-ground leadership development experience of ILDI members. The proposal is intended to guide the state's education community in planning and implementing a cohesive set of improvements to strengthen the principal pipeline.

⁵¹ These flexibility provisions authorize local educational agencies to use these categorical funds for any educational purpose over a five-year period ending July 1, 2013.

The NGA brief emphasizes that states have limited influence over professional development for principals, since most professional development occurs at the district level. However, the NGA recommends that states can hold professional development providers accountable to the standards of high-quality professional development programs. The National Staff Development Council also has standards that could guide the development of such programs. States will need to develop common delivery and performance expectations and work closely with districts and providers to implement the expectations, and to provide incentives for practicing principals to participate in the improved programs.

For the statewide implementation of the multiple pathways approach, California will need to establish more principal induction and professional development programs that fulfill the standards and recommendations discussed here, with the additional condition that these programs be developed to address the competencies and skills that administrators need to implement pathways.

SCHOOL COUNSELORS

"School counselors and other student support staff should not be viewed as providers of optional services on the periphery of the school's mission, but as professionals who deliver a program that is essential to the operation of the school and the success of all students" (CDE, 2007). This view is particularly true in considering the effective implementation of pathways, as school counselors can provide real leadership in ensuring that students receive the necessary opportunities and support to succeed in their academic coursework, career exploration and experience, and social development. Close collaboration among the administrators, teachers, and school counselors ensures that all students' needs are met.

The school counselor is not limited to handling attendance or student behavior problems. According to the CTC:

The primary roles of school counselors are to provide educational counseling services in grades 12 and below, including preschool, and in programs organized primarily for adults. Those services would include the following: develop, plan, implement and evaluate a school counseling and guidance program that includes academic, career, personal and social development; advocate for the high academic achievement and social development of all students; provide school-wide prevention and intervention strategies and counseling services; provide consultation, training and staff development to teachers and parents regarding students' needs; and supervise a district-approved advisory program as described in *Education Code* Section 49600 (CTC, 2006).

Counselor Demographics and Assembly Bill 1802

The California *Education Code* Section 49600 states that the "governing board of any school district may provide a comprehensive educational counseling program for all pupils enrolled the schools of the district." In 2003, the *Assembly Bill 722 Study of Pupil Personnel Ratios, Services, and Programs* showed California was facing severe challenges with student support. It stated, "The major difficulties in attracting and retaining credentialed pupil support services personnel are lack of adequate funding

and district budget limitations" (CDE, 2003). However, California has limited means to collect data on school counselors, and no comprehensive studies of these professionals currently exist to accurately determine supply, demand, and distribution.

In 2005, California, and the Los Angeles Unified School District in particular, were harshly criticized in reports concerning California's high levels of dropouts. In response, AB 1802 (Chesbro) was passed in 2006, providing supplemental funding to California districts to increase the number of middle and high school counselors. The resulting Supplemental School Counseling Program (SSCP) for grades seven through twelve constituted a major reform in California's educational system. The program's intent was to improve the ratio of students to counselors to 500:1 for middle schools and 300:1 in high schools. For 2008–09, 9,000 counselors were working in California, up from 6,977 in 2006 (CDE, 2009).

A California Research Bureau survey of middle and high school counselors found that 90 percent of them received their school counseling credential in California, which requires that they have demonstrated expertise in academic, personal/social, and career development counseling. In addition, 60 percent of counselors possessed additional credentials for teaching, administration, or specialized credentials; or a certificate to work with a particular group of students (e.g., reading specialist, special education, bilingual education, or CTE) (de Cos, 2009).

Although AB 1802 made a positive impact, in response to the state's economic crisis, SSCP funds were among the state categorical programs placed in Tier III flexibility (CDE, 2003). Although the numbers of school counselors affected by these changes will not be known until the fall CBEDS reporting cycle, indicators are that many school counselors who were funded by AB 1802 lost their jobs.

California's Results-Based School Counseling and Student Support

In 2007, the CDE released the *California Results-Based School Counseling and Student Support Guidelines*. The document aligns with California law, follows the framework of the American School Counselor Association's *National Model: A Framework for School Counseling Programs*, and helps districts to establish school counseling and student support teams that include home and community resources to provide support for students to succeed. It also provides guidelines for districts to use data to design, intervene, and evaluate school counseling services to students (CDE, 2007).

The CDE guidelines clearly state that school counseling programs should provide guidance, counseling, and student support in academic, career, and personal/social development. The academic domain "centers on supporting and helping students to experience academic success, produce high-quality work, and be prepared for a full range of options and opportunities after high school. The academic area includes acquiring skills in decision making, problem solving, and goal setting" (CDE, 2007). The career domain "provides the foundation for students to develop skills, attitudes, and knowledge that facilitate the transition from school to the world of work and from various jobs across the life career span in today's modern workforce. Within this domain students may explore career interests and options, participate in service-learning projects, perform apprenticeships, and plan and pursue postsecondary study" (CDE, 2007).

From 2005 through 2007, the California Association of School Counselors, Inc. (CASC) also led an effort to develop standards of practice for school counselors in California. CASC reported that local expectations for school counselors and their role sometimes directly contradicted the training counselors received in their preparation programs. Despite the increase in counselors hired throughout the state due to AB 1802, at least 29 percent of California school districts had no counseling programs. Further, when new school counselors were hired, many of them received job descriptions that severely limited their ability to offer the services and programs they were trained to provide (CASC, 2007). The *California Standards for the School Counseling Profession* (2007) was developed to provide guidelines for districts and schools to use school counselors more effectively. The documents established that academic and career counseling were key responsibilities for school counselors.

The California Research Bureau, however, provided their survey results of middle and high school counselors in California that indicate there is still room for improvement with school counseling services (de Cos, 2009). An overwhelming majority of respondents indicated familiarity with the national standards for school counseling programs and AB 1802. For those familiar with AB 1802 and who had received funding, the schools had changed the number of school counselors employed, extended their counseling services, and supplemented their career guidance programs. However, less than half of the respondents indicated familiarity with the state's career technical education standards and the national SCANS foundation skills and competencies for employment (de Cos, 2009). Approximately 50 percent of the responding principals and counselors indicated they offered a career development curriculum. Of the high school respondents, 70 percent reported that their schools offered a career development curriculum. Slightly more counselors (71 percent) than principals (61 percent) indicated that their school counseling program provided career counseling.

Ongoing Professional Development for Counselors

Professional development for school counselors is a necessity as it is for other education professionals. The CASC standards state that counselors should actively engage in planning their professional development, with the intent of pursuing opportunities to improve their practice; promote continuous progress in school counseling; and adhere to professional codes of ethics, legal mandates, and district policies (CASC, 2007). Specifically, the standards identify areas for professional development that include the following:

- The roles and responsibilities of the school counselor
- Current trends in the fields of school counseling and education
- Opportunities for advanced certification and specialization
- Effective practices in school counseling
- Analysis of counseling activities and their impact on student learning
- Legal and ethical principles regarding the administration of standardized tests and other assessments

- Laws and regulations pertaining to children and families addressing abuse, neglect, attendance, truancy, confidentiality, and special education mandates
- Laws and regulations pertaining to California public education and school district policy

The CDE *Guidelines* (2007) state that professional development activities for school counselors and teachers help to create and maintain a positive school climate and focus on learning. The guidelines identify curriculum development; use of technology and data analysis; use of computerized student data programs for monitoring student progress; and guidance for students with attendance, behavior, and achievement problems. The guidelines also promote school counselors' participation in professional associations for ongoing professional development. In addition, the CDE states that effective professional development for school counselors should address state and federal laws pertaining to due process, child welfare, and attendance (CDE, 2003).

High-quality pathways will require professional development for counselors that addresses their work in the academic and career domains. School counselors should also have opportunities to participate in externships with business and industry along with administrators and teachers, and counselors should regularly be included with administrators and teachers in professional development activities that focus on examining student outcomes and planning.

CONCLUSION

Successful implementation of the multiple pathways approach will depend on skilled administrators who are prepared to partner with industry, business, and community partners; and counselors who are prepared to collaborate with teachers to provide guidance and support to students in both the academic and career domains. California has a number of challenges to overcome to prepare and retain the supply of administrators and counselors who can fulfill these roles.

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Chapter 12. Accountability, Assessment, and Evaluation

INTRODUCTION

If anything has been learned from the federal NCLB Act, it is that schools and districts will direct their efforts to those things for which they will be held accountable. NCLB requires that state accountability systems focus primarily on student achievement, principally English-language arts and mathematics. As a result, there has been a concomitant increase in the amount of instructional time devoted to those subjects – and a decrease in time devoted to CTE and other electives (CDE & CCCCCO, 2008; DataQuest, 2009).

This chapter looks at ways in which California's accountability systems might be modified or enhanced to encourage the implementation of high-quality pathways using the multiple pathways approach, while still retaining a focus on student achievement in the core academic subjects. The chapter's main focus is the state-level accountability system and some of the underlying data on which it is based. In addition, local accountability and assessment systems, as well as issues related to program quality assessment and evaluation, are discussed.

OVERVIEW OF ACCOUNTABILITY IN CALIFORNIA'S K–12 EDUCATIONAL SYSTEM

California's K–12 education accountability system takes multiple forms and incorporates multiple measures of school and district effectiveness. The two primary measures, however, are the Academic Performance Index (API) and Adequate Yearly Progress (AYP).

API. The API was developed in California to measure student achievement and promote academic growth across the curriculum in schools and districts over time. It employs a weighted system of results from the standards-based academic assessments in the Standardized Testing and Reporting (STAR) Program and the California High School Exit Examination. The assessments measure achievement in English-language arts, mathematics, history/social science, and science – the subjects traditionally thought to be most important for students' future success. The test results are combined to produce an annual index number from 200–1000 for each school and district (and for student subgroups of significant size). Based on a school or district's previous year API, a growth target is established for the following year. A school that meets its growth targets for the school as a whole and for designated subgroups (e.g., low-income, Asian, English learners) meets its API goal. Schools that receive state low-performing school funds that fail to reach their API targets and do not demonstrate significant growth in their APIs are subject to a graduated system of sanctions and interventions.

AYP. The AYP, on the other hand, is the primary measure of school and district success for federal accountability under NCLB. While the assessments used in the AYP system are basically the same as in the API system, the metrics employed are significantly different. Whereas the API system generates an index number for schools and districts, the AYP system is based on the percentage of

students scoring proficient in English-language arts and mathematics, with the expectation that all students will reach proficiency by 2013–14. For high schools, California uses CAHSEE results to determine proficiency levels for AYP purposes. AYP also requires schools to report their graduation rates. (California uses the API as a required “additional” indicator to meet federal accountability requirements.) Schools and districts that receive federal Title I funds and fail to meet their AYP targets are subject to sanctions that increase in severity over time.

School Accountability Report Cards. Although lacking the sanctions associated with the API and AYP, California adheres to state and federal requirements pertaining to the publication of School Accountability Report Cards (SARCs), which include several measures for high schools that are relevant to the multiple pathways approach. For example, schools and districts are required to report on SARCs the percentage of students completing all graduation requirements, both state and local, including the number of students passing the CAHSEE, dropout and graduation rates, teachers’ credential status, and the number of counselors and support staff. With respect to postsecondary preparation, high schools report on both the percentage of graduates who have completed the a–g requirements for public university admission and the percentage that have completed a CTE program. The SARC does not, however, report the percentage of graduates completing *both* the a–g requirements and a CTE program as suggested for pathways using the multiple pathways approach.

Student-level expectations. In California, state minimum graduation requirements also serve as a form of accountability in setting the rigor, number, and types of courses students must complete to graduate from high school and receive a diploma. These requirements, in turn, form the basis on which course completion and high school graduation rates – included in the AYP – are calculated. California *Education Code* Section 51225.3 states that all pupils receiving a diploma of graduation from high school must complete all of the following courses while in grades nine to twelve (as well as pass both portions of the CAHSEE). Each of the courses must have a duration of one year, unless otherwise specified (<http://www.cde.ca.gov/ci/gs/hs/hsgmin.asp>):

- Three courses in English
- Two courses in mathematics, including one year of Algebra I (California *Education Code* Section 51224.5)
- Two courses in science, including biological and physical sciences
- Three courses in social studies, including U.S. history and geography; world history, culture, and geography; one semester in American government and civics; and one semester in economics
- One course in visual or performing arts or foreign language (which could be a course in American Sign Language)
- Two courses in physical education, unless the pupil has been exempted pursuant to California *Education Code* Section 51241

- Other coursework as the school district's governing board may by rule specify

The high school graduation requirements separate — unnecessarily and perhaps even detrimentally — academic courses from the “alternative means for pupils to complete the prescribed course of study,” for which the California *Education Code* provides the following examples:

- Practical demonstration of skills and competencies
- Supervised work experience or other outside school experience
- Career technical education classes offered in high schools
- Courses offered by regional occupational centers or programs
- Interdisciplinary study
- Independent study
- Credit earned at a postsecondary institution

In addition, whether they take a traditional or an alternative course sequence, students can meet California's high school graduation requirements and still be unprepared for success in college or the workplace. Based on its annual 50-state surveys of alignment between a state's high school policies and the expectations of colleges and employers, Achieve found that California is one of only 12 states that aligned its high school standards with college and work expectations (Achieve, 2007).⁵² However, it also found that California is one of 21 states that does not align its high school graduation requirements with college and workplace expectations, and one of 33 states that does not hold its high schools accountable for graduating students who are college- and work-ready. In 2009, Achieve found that California is not among the 28 states (and the District of Columbia) that either require all students to complete a college- and career-ready curriculum or are at least planning to establish higher expectations to prepare the state's high school graduates for college and careers.

Findings from assessments of college preparedness have helped spur a national movement, spearheaded by the National Governors Association Center for Best Practices and the Council of Chief State School Officers, in partnership with Achieve, ACT, and the College Board, to define a set of “Common Core State Standards,” emphasizing the “standards that will help prepare students with the knowledge and skills to succeed in college and careers and to be prepared to compete globally.” The standards will include “high-level cognitive demands by asking students to demonstrate deep conceptual understanding through the application of content knowledge and skills to new situations.”

The multiple pathways approach seeks to maximize students' opportunities by surpassing the minimum state requirements and transcending the academic/alternative split posited in the California *Education Code*. The approach elevates both rigor — in the number and quality of academic courses taken and the inclusion of a rigorous career technical core — and pedagogical effectiveness, systematically incorporating instructional strategies, such as project-based and

52 In January 2008, California joined the American Diploma Project Network, a project of Achieve, a nonprofit educational reform organization created in 1996 by the nation's governors and corporate leaders (<http://www.achieve.org/AboutAchieve>).

work-based learning, into the curriculum for all students. The purposes and practices inherent in the multiple pathways approach are also consistent with the national movement toward depth of knowledge. Pathways focus the learning process so that students can meet both academic and CTE standards *and* achieve the depth of understanding through applied learning strategies.

In addition to improving rigor and pedagogical effectiveness, pathways prepare students for a wide variety of career options. If, in promoting the expansion of the multiple pathways approach, the state prioritizes this kind of preparation for careers as well as for postsecondary education, then demonstrated mastery of career-related skills, such as career technical, personal career management, financial literacy, and digital literacy skills, should be considered for inclusion in the state's graduation requirements. The state may also consider standards-based performance benchmarks, rather than course completion, as a means for students to meet high school graduation requirements, in keeping with the goal of prioritizing learning over seat time.⁵³

Inclusion of graduation rates, student recovery rates, CTE program completion and certification, and completion of college entrance requirements into the state's accountability system would also support the goals of greater student engagement and preparation for both postsecondary education and careers.

Finally, any changes in graduation requirements or additions in the elements to be included in the state's accountability system should be framed by a careful discussion about the definition of college and career readiness in California. While there is overlap between college academic readiness and career readiness, components of each are necessarily unique, requiring multiple methods of assessment. Further discussions are needed to determine the skills necessary for success in *both* postsecondary education and future careers (and for that matter, in navigating through the high school years), such as study skills, problem solving, creativity, and communication skills, as well as those that are unique to each domain. While difficult to assess, there is agreement that all of these skills are critical for the development of a highly educated and trained citizenry.

DATA SYSTEMS TO SUPPORT ACCOUNTABILITY

Data are needed to support accountability systems. Until recently, California did not have a data system to track student progress over time, a shortcoming that has been noted in both national and statewide studies. However, progress has been made. California's K–12 longitudinal student data system (CALPADS) was launched in August 2009; a state longitudinal teacher data system (CALTIDES) is scheduled to be launched in 2010–11; intersegmental data system discussions are under way; and the State Chief Information Officer submitted a strategic plan for a preschool to graduate school longitudinal data system to the Legislature and the Governor in March 2010.

The new federal education leadership has reiterated the federal government's longstanding admonition that states need to implement and maintain data systems that can "track" a student's progress from pre-kindergarten through college and the workplace. Both school district CTE programs receiving Carl D. Perkins funds and all ROCPs are required to track students' academic and career technical skill attainment; school completion and/or graduation rates; and placement

⁵³ For more information, see Chapter 6.

in postsecondary or advanced training, military service, employment, or nontraditional enrollment and completion (CDE & CCCCCO, 2008). Perkins grantees submit data that are combined into a "Consolidated Annual Report" that is submitted to the U.S. Department of Education. However, no system currently exists to track postsecondary persistence or employment beyond the district data collection through Perkins funding for CTE programs.

Related to the issue of tracking student course completion is that of cataloguing courses in the statewide CBEDS. CBEDS currently tags courses "by subject area" or as "CTE"; it does not accommodate listing courses that meet *both* CTE and subject area criteria in a way that can be retrieved in either data set. For example, many multi-media courses are listed under "Art," with 463 digital art/computer art/graphics courses listed. In addition, under "Career Technical Education," many courses are listed under the Arts, Media, and Entertainment industry cluster. There is no way of easily discerning from the database which of these courses fit the criteria for *both* CTE and academic courses, and beyond this, which meet the a-g criteria.

The multiple pathways approach encourages districts to seek a-g approval for CTE courses so that these courses can engage students, provide high-quality technical skill development, and promote postsecondary transition, while minimizing the impact on students' schedules. A CBEDS system to identify those courses that meet both or several criteria would enable educators to identify these courses and send a strong signal that the state encourages integration.

Finally, consideration should be given to capturing both work-based learning and greater detail on counseling activities in the state's data systems, in alignment with the goals of the multiple pathways approach. There is currently no means to capture statewide data about levels of student participation in work-based learning, except for participation in work experience programs. With regard to counseling, AB 1802, before it was placed in categorical flexibility, required counselors to inform students about a variety of program options, including CTE. Programs using the multiple pathways approach could also be highlighted, and referral information could be included on the data collection form.

LOCAL ASSESSMENT AND ACCOUNTABILITY

Although the public's attention is often focused on state assessments and the related accountability systems, much in the assessment arena occurs, quite correctly, at the local level. With increasing frequency, schools and districts are creating local formative assessment systems to monitor pupil progress toward end-of-course and end-of-year academic goals. Some districts are also matching individual student data over time to monitor how programs are contributing specific students' growth, from year to year.

Local assessments complement state-level assessments. State assessments must meet strict criteria for reliability and validity while still being cost effective, which generally leads to a reliance on multiple-choice formats. Local assessments, on the other hand, can take a broader approach, using a variety of assessment formats and linking more closely to local program offerings. Portfolios of student work, culminating projects, student performances, and workplace evaluations are assessments that are best done locally and are ideally suited for assessing student progress in pathways.

The educational frameworks in each content area provide specific guidance to districts on implementing local assessment within a standards-based curriculum and instruction environment. The frameworks describe local assessments within three categories: entry-level assessment, progress monitoring, and summative assessment. Each of the frameworks describes the processes districts, schools, and instructors can use to develop and evaluate student achievement. The *Career Technical Education Framework* and the *Visual and Performing Arts Framework* give specific guidance to schools on considerations for building performance-based assessments. For example, students can be required to show, through demonstration and products, the mastery of specific skills and concepts within the context of the subject area or pathway theme. The guidance in the framework documents, such as the design and use of scoring rubrics or portfolio assessment, is particularly relevant to the contextual learning strategies employed in pathways using the multiple pathways approach.

A key resource in helping develop effective local assessments is the CTE Online initiative. CTE Online is an Internet-based system that assists CTE teachers in building standards-based lessons and related assessments that combine both career technical and academic skills. The system leads instructors through a process to identify standards linked to instructional activities that are of sufficient scope and rigor to demonstrate either support, reinforcement, or mastery of academic skills. Each lesson and assessment is reviewed by academic content experts trained to give CTE instructors feedback on the lesson design and accompanying assessments. Lessons that are deemed to be high quality are posted so that other instructors registered within the system can adopt or adapt the lessons to their classrooms. CTE Online was designed primarily for CTE instructors, but it can be adapted to any educational subject area. This system has proven useful to many teachers within academies and pathways, and it could easily be expanded to support pathway instruction and assessment.

In addition, WestEd is working with the National Academy Foundation to develop a comprehensive student assessment system for NAF academies. The emerging system includes a multi-method approach to assess a broad range of content and skills that allow students to demonstrate their learning in various ways, including project assessments, end-of-course exams, and portfolio assessments.

PROGRAM QUALITY ASSESSMENT

Many educational programs using a multiple pathways approach, both in California and nationally, are currently experimenting with various assessment formats, including program quality assessment. Program quality approaches have been supported throughout the state over the past two decades to assist schools and districts in assessing whether educational programs have necessary components, characteristics, and systems in place, and whether these are of high quality, leading to increased student achievement. Nearly every program quality instrument developed in recent years focuses on both academic rigor and the policy intent undergirding the program.

High School Accreditation

California high schools participate in a comprehensive schoolwide quality assessment process — the accreditation process — administered by the Western Association of Schools and Colleges. WASC accreditation is a crucial event for California schools for several reasons. For example, the

UC will only grant a–g course approval at WASC accredited schools. To be eligible for Cal Grants, a student must graduate from an accredited school, and colleges and universities are reluctant to admit students from non-accredited high schools.

WASC accreditation normally takes place over a six-year cycle,⁵⁴ culminating in a self-study and an onsite review by a WASC visiting committee of educators. Central to the process are the WASC criteria, a set of research-based guidelines for school improvement and accountability. WASC is sensitive to local standards and has adapted the criteria for joint efforts in different states, including California. In California the joint process is called Focus on Learning. Several school districts reported success in adapting the WASC process to support the implementation of high-quality pathways in their schools, thereby helping to move the reform effort forward.

Pathway Certification

In response to the advent of the multiple pathways approach to high school design, a set of pathway certification criteria, a generic rubric to accompany the criteria, and a glossary of terms have been developed by a team of representatives from the Career Academy Support Network, the CDE, ConnectEd, the National Career Academy Coalition, and NAF, as well as representatives from high schools and districts. These certification criteria provide general descriptions of quality for pathway elements, while the rubric provides a guide to assess pathway quality in each of the elements. Together, the criteria and the rubric provide sufficient detail that individuals just embarking on the design of pathways can get a clear picture of where they are headed, while those currently implementing pathways can use the criteria and rubric for self-assessment of program quality and fidelity as well as for program improvement.

External evaluators working at the school and district level can also use these or similar certification criteria and rubrics to guide improvements in practice. When local evaluations are reviewed in the aggregate at the state level, best practices can be identified, and state support can be directed where it is most needed.

Academy Certification

The California Career Academy Support Network, in cooperation with the CDE, has worked on models of program quality and certification tools since the early 1990s. These efforts have led to prototype certifications and piloted projects to help districts evaluate the degree to which academies are following the California Partnership Academy model as set forth in the California *Education Code*.

Specialized Program Certification and Awards

The Regional Occupational Centers and Programs Model Programs certification is an example of assessing program quality. ROCPs conduct a self-study within programmatic and administrative areas to determine whether or not they will qualify for state recognition as a model program. A team of state and local experts conduct a validation visit to determine the accuracy of the self-study.

⁵⁴ Initial applications are reviewed in three years.

A similar process is conducted for the middle grades School to Watch program, the Model Continuation Schools program, the Title I Achieving Schools designations, and the annual Distinguished Schools Award program. In all of these efforts, schools reflect on their data, systems, and practices and how to improve them to a level of excellence.

Essential Program Components

The CDE and the State Board of Education have adopted nine Essential Program Components (EPCs) for use as a framework for California schools and districts to focus educational improvement efforts. The nine components include:

1. Use of standards-based State Board of Education (SBE)-adopted (kindergarten through grade eight) or standards-aligned (grades nine through twelve) English/reading/language arts and mathematics instructional materials, including intensive interventions and English-language development (ELD) materials
2. Implementation of instructional minutes for basic core reading/language arts (RLA) and mathematics programs, intensive intervention and strategic support courses as well as additional instructional time for structured ELD at all grade levels
3. Use of an annual district instructional/assessment pacing guide for grades K-8 and high school
4. Implementation of a School Administrator Instructional Leadership Training Program
5. Fully credentialed, highly qualified teachers, per the requirements of the Elementary and Secondary Education Act (ESEA) and professional development on SBE-adopted instructional materials
6. Implementation of ongoing instructional assistance and support for RLA, ELD, and mathematics teachers through the use of content experts, specialists, and instructional coaches
7. For all grade levels, implementation of a student achievement monitoring system that provides timely data from common formative and curriculum-embedded and summative assessments for teachers and principals to use to monitor ongoing student progress, identify student needs, inform instruction, and determine effectiveness of instructional practices and implementation of the adopted programs
8. Implementation of monthly structured teacher collaboration for all RLA, ELD, and mathematics teachers by grade level (K-8) and common course and department levels (9-12) facilitated by the principal
9. Implementation of fiscal support aligned to full implementation of EPCs

The multiple pathways approach appears to be an important means to help turn around low-performing high schools, and in doing so it can incorporate and enhance the nine EPCs. Further work is needed to identify points of intersection and mutual reinforcement among the EPCs, the four components of the multiple pathways approach, and mandated school improvement processes to produce the greatest positive impact.

ADDITIONAL POLICY ISSUES REGARDING ACCOUNTABILITY

Monitoring pathway development and new approaches to monitoring student performance will also be necessary as pathways expand.

Monitoring Progress in Pathway Expansion

Given the challenges of pathway creation, expansion of the multiple pathways approach will likely occur incrementally across the state. The progress in both pathway development and enrollment levels should be monitored to ensure fidelity to the multiple pathways approach, in the same way that enrollment-related data, as well as system-design issues, are monitored in the California Partnership Academies. With regard to enrollments in work-based learning and counseling, monitoring may occur through enhancements to reporting requirements for ROCP and AB 1802 or through other means.

In addition, for work-based learning, counseling and career guidance, and other student support services, guidelines are needed regarding expected levels of activity. Further, formalized definitions of various types of work-based learning, such as school-based enterprise, social enterprise, community-based project, service learning, and internship, should be considered for inclusion in California *Education Code* Section 51769, as already exists for "job shadowing."

Monitoring Performance in Smaller Instructional Units

As pathways expand, they add to the number of smaller instructional units in high schools, which already include various small learning communities, academies, and new small schools. California's statewide accountability system currently does not provide information about the performance of students in these small units (except for small schools with their own county-district-school codes). To obtain such information, district data systems must "flag" students enrolled in each small learning environment and update this flag each semester.

In addition, the year-end test scores used to compute the API and AYP do not indicate how well each of these small units is functioning, because some of these small units may initially attract higher- or lower-performing students. The API "growth" calculations also can be misleading for small programs, because they compare each year's students with the previous year's students at the same grade levels, and in small units the composition of students may change significantly from year to year. The best way for districts to check on whether students in pathways or other small learning environments are making good progress is to match data for individual students from one year to the next. Performance in the previous year can then be used to "predict" students' performance in the current year. Pathway programs or other small instructional groupings where students perform above their predicted level have "value added." This kind of analysis can be done with test scores even if the tests are not vertically aligned from year to year. This analysis also can be done with other measures of performance that districts routinely record, including attendance, credits earned, grades, disciplinary incidents, and promotion.

CONCLUSION

The state's assessment and accountability systems play influential roles in shaping the delivery of curriculum and instruction in public schools. If modified in particular ways, these systems could potentially stimulate and increase the supply of pathways using the multiple pathways approach in schools and districts throughout the state. As a first step in this direction, California's continuing efforts to improve the alignment of the state's K–12 educational policies with the expectations of colleges and employers should be explicitly recognized as a critical component of the state's ongoing efforts to create the conditions necessary for closing the achievement gap. While the California achievement gap has been commonly defined as differences in academic performance measured by the state's standards-based assessments, the gap is also evident in the differences in student preparation for success beyond high school graduation.

California could use its participation in the American Diploma Project to bring attention to the need to raise expectations for student achievement by enhancing the rigor and relevance of the state's high school graduation requirements. For example, California policymakers should be engaged in serious policy discussions about levels of English and mathematics attainment required for high school graduation; about adding a career awareness, career technical, work-based learning, or capstone project component to the state's high school graduation requirements; and about using standards-based performance benchmarks rather than course completion as the basis for students to meet graduation requirements. California should also consider the need to identify and adopt appropriate college and career readiness indicators, goals, and targets that could be incorporated into California's K–12 educational accountability system.

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Chapter 13. State Leadership

INTRODUCTION

The success of multiple pathways as an approach to reforming California's secondary education system will be measured in improved outcomes for thousands of students in school districts, schools, and classrooms. Educators must come together with industry and community leaders to do the hard work of implementing new, integrated curricula; organizing and supporting work-based learning; and making sure that all students receive the support they need so they leave high school well prepared for the next steps on their educational and career paths.

However, for successful multiple pathway schools and districts to be more than islands of excellence and for those establishing new pathways to be provided the support they need, coherent action is needed at the state level. For example, the expansion of pathways will increase the demand for high-quality, integrated curriculum. Teams of teachers working in hundreds of school districts have neither the time nor the resources to develop new curriculum. What they do have is the time and the expertise to adapt previously developed and thoroughly reviewed curriculum to their local contexts. The extent to which the state can support the development of integrated curriculum will make successful implementation of pathways that much easier. Furthermore, the ability of school districts to offer meaningful work-based-learning opportunities to students will be enhanced by appropriate policies and guidance from the state.

This chapter explores the extent to which the state is able to provide leadership for this movement. In particular, this chapter also provides, as directed by Assembly Bill 2648, an "assessment of the current capacity" of the California Department of Education "for the purpose of maximizing the development of the multiple pathway programs," and identifies "the possible roles and responsibilities of other departments or agencies to assist in developing or expanding multiple pathway programs." It identifies steps that might be taken to ensure that the multiple pathways approach can be successfully pursued as a statewide initiative to improve opportunities for all students in California.

WHO IS "THE STATE"?

If asked to identify the state agency responsible for education, California educators would most likely name the California Department of Education or the State Board of Education (SBE). And they would not be far off the mark. For the day-to-day operations of schools, the SBE sets the policy and the CDE, under the leadership of the elected State Superintendent of Public Instruction, executes the policies.

However, the structure of education governance and support in our state is considerably more complex. The Legislature, along with the Governor, establishes the legislative framework for California's education. The CDE and its staff often can play important roles in the development of new state educational policies and programs. In addition, the SBE sets policy in many, but not all, areas within K–12 education. At the state level, some education policymaking activity is led by other bodies, such as the CTC. Expanding the multiple pathways approach, with the emphasis on seamless

integration with business, industry, and institutions of higher education, adds another layer of complexity to the governance structure.

If the multiple pathways approach is to become a key strategy for improving secondary education, then various state-level participants must come together to work in a coordinated and consistent manner to support the effort. In the area of governance, the Legislature, the Governor, the Governor-appointed Secretary of Education, and the CTC must work collaboratively with the SBE, the State Superintendent of Public Instruction, and the CDE to create the statutory and policy framework to enhance the expansion of the multiple pathways approach.

The state's institutions of higher education also need to do their part to make the expansion of the multiple pathway approach a statewide reality. The UC, CSU, and community college systems, as well as private colleges and universities, all have significant roles to play in ensuring that structures are in place to promote — rather than inhibit — this new view of secondary education. Implementation of many of this report's recommendations will require their participation.

Similarly, the Secretary of California's Labor and Workforce Development Agency and the Agency's key departments, including the Employment Development Department (EDD). Within the EDD, the Labor Market Information Division, the California WIB, and the WIB One-Stop Business and Career Centers all have a role to play. From a policy perspective, the California WIB works together with the educational community in shaping policies and allocating resources that promote workforce development within the 49 WIB service areas. With guidance from the California WIB, local WIBs promote these efforts in their areas and oversee local youth councils that coordinate youth employment and career development opportunities for both in-school and out-of-school youth. The EDD's Labor Market Information Division and the WIB are critical to ensuring that educators are familiar with the labor market trends in their areas; this information is necessary to identify industry sectors for their pathways and to coordinate pathway rollout within and across districts in an economic region. The EDD can also work with the educational community to facilitate access to data related to students' labor market outcomes over time.

There are also non-governmental agencies that operate at the state and regional levels whose support and assistance will be crucial to this reform effort. For example, for nearly 30 years, the AVID program has significantly improved the college-going rate among underachieving and underserved students who thought college was not a possibility for them. How pathways interact with AVID programs and the 1,460 schools in which they operate will be a crucial question for both efforts. WASC is an example of another organization whose support of the multiple pathways approach needs to be enlisted, especially with regard to the way in which WASC structures its accreditation process in California.

The leadership and expertise of organizations, such as the Career Academy Support Network (CASN) and the National Academy Foundation, have been critical in the development of pathways to date and will continue to be important. CASN has worked closely with the CDE in providing technical assistance to California Partnership Academies. NAF has started academies and provided technical assistance to schools in its network. In so doing, it has modeled "best practices" and promoted the expansion of integrated programs. The support of statewide business and industry groups, such as

CalChamber (the California Chamber of Commerce), will also be crucial to the success of the multiple pathways approach.

LEADERSHIP CHANGES DRIVE THE NEED FOR A STATE-LEVEL ADVISORY GROUP

One of the key factors in holding together an effective coalition of legislators, educators, industry leaders, and philanthropists is state-level leadership. It was repeatedly pointed out during the interviews conducted to prepare this report that efforts to promote the multiple pathways approach have benefited from the convergence of state support from many quarters.

The Governor is an acknowledged advocate of CTE and has supported legislation to expand both CTE in general and pathways in particular. The State Superintendent of Public Instruction has strongly supported the multiple pathways approach, as has the philanthropic community led by The James Irvine Foundation. The business community has also supported the movement as evidenced by significant business and industry representation in the Linked Learning Alliance, including CalChamber, California Engineering Education Council, Contra Costa Council, Contra Costa Economic Partnership, East County Business Education Alliance, Greater Bakersfield Chamber of Commerce, Hospital Association of Southern California, Inland Empire Economic Partnership, Linking Education and Economic Development, Los Angeles Area Chamber of Commerce, MWH Global, Orange County Business Council, San Diego Regional Chamber of Commerce, and San Francisco Chamber of Commerce.

Unfortunately, given the state's past history with educational reform movements, it is not likely that this convergence of support for the multiple pathways approach will last forever. Both the Governor and State Superintendent of Public Instruction are in their final year of office, and with term limits resulting in relatively frequent changes in legislative leadership, the state will face a significant challenge in continuing to lead the efforts to expand the multiple pathways approach in California's public schools.

One potential way to help maintain the current momentum to develop the multiple pathways approach and support and guide further efforts would be to create a state-level advisory group or charge an existing advisory body, such as the Superintendent's P-16 Council, to build upon the work of both the AB 2648 stakeholders' group and the Linked Learning Alliance. This strategy would be consistent with importance that Fullan (2007) places on the role of a "guiding coalition" in motivating change and ensuring communication among stakeholders, as described in Chapter 1 of this report. Other components of Fullan's recommended overall strategy for large-scale reform include "negotiating aspirational targets," "building capacity in relation to the targets," "growing the financial investment," and "evolving positive pressure." In concert with these four strategic components, the state needs to ensure that the policy structure governing the operation of secondary schools provides clear goals and powerful incentives that stimulate local efforts to use innovative approaches, such as the multiple pathways approach, to meet statewide educational objectives. As a result, it would be appropriate for the CDE to continue to be expected to communicate the state's school improvement goals to LEAs and to provide the agencies with the necessary technical assistance and other services to complement and support emergent local initiatives.

CDE'S CURRENT CAPACITY TO MAXIMIZE DEVELOPMENT OF THE MULTIPLE PATHWAYS APPROACH

As mentioned, AB 2648 specifically asks for an “assessment of the current capacity” of the CDE “for the purpose of maximizing the development of the multiple pathway programs.” The key to building capacity of the department to maximize the development of these pathway programs is to assign an appropriate role to the CDE, along with adequate funding to carry out these responsibilities. In cooperation with other entities, the CDE can play an indispensable role in coordinating and guiding the overall effort. This role would include supporting the development of integrated curriculum, designing and monitoring contracts and agreements with those providing technical assistance to schools and districts, overseeing collection of data and evaluation of pathway programs, following up on the advice and guidance of the state-level advisory committee, and proposing legislation and regulatory changes needed to smooth the way for districts moving forward with the multiple pathways approach.

In addition to the challenges inherent in the transition process for elective state offices, the CDE is currently addressing the personnel and other operating impacts of numerous state budget reductions. The CDE has also recently reorganized its structure to reduce the number of branches and divisions in light of the new fiscal restrictions. One particularly noteworthy aspect of the reorganization is a new P-16 Division that includes the Intersegmental Relations Office whose staff continue to work with the Secondary, Career, and Adult Learning Division staff to implement AB 2648.

Under the leadership of the State Superintendent of Public Instruction, the CDE has recently demonstrated its capacity to redirect existing resources to launch new statewide initiatives. Two examples of this capacity are the California Brokers of Expertise (BOE) Project and the effort to implement the Response to Instruction and Intervention (Rtl²) approach.

The BOE is a groundbreaking knowledge management system that was launched as part of the State Superintendent's commitment to implementing the 14 recommendations for closing the achievement gap that he received from his California P-16 Council. This new system is being designed to gather all available educational research on instructional practices that meet high standards, expertly cull the data for meaningful trends, and develop workable strategies specific to implement the use of research in California's extraordinarily diverse classrooms. As a Web-based system that will facilitate networking and the exchange of information, the BOE will allow thousands of outstanding educators from San Diego to Siskiyou to share their expertise and learn of the latest innovations from their colleagues throughout the state as well as from experts within California's research community.

The CDE has also assisted the State Superintendent of Public Instruction in the recent launch of the Rtl² approach. This statewide initiative's purpose is to establish a general education approach of high-quality instruction and early intervention, prevention, and behavioral strategies. Rtl² offers a way to eliminate the achievement gap through a schoolwide process that provides assistance to every student, both high-achieving and struggling learners. It utilizes all resources in a school and school district in a collaborative manner to create a single, well-integrated system of instruction and interventions informed by student outcome data. Rtl² is fully aligned with the research on the effectiveness of early intervention and the recommendations of the California P-16 Council. It

integrates resources from general education, categorical programs, and special education through a comprehensive system of core instruction and interventions to benefit every student.

For the multiple pathways approach to be successful as a statewide reform strategy for secondary education, the CDE must be empowered to serve in its coordination and guidance role. In marshaling its resources, the CDE will need to involve many of its units in this effort, and all of these units must become fully versed in the purpose and characteristics of pathways. One possible model for this kind of ongoing collaboration within the CDE could be the cross-branch effort to implement AB 2648 that is described above.

CONCLUSION

If the multiple pathways approach is to become a centerpiece of secondary educational reform in California, state-level leadership is crucial. While the establishment of an effective state-level leadership structure to support pathways implementation may be particularly challenging in the context of pending leadership changes and the state's ongoing fiscal crisis, it is nevertheless critical that the state position itself to lead this initiative effectively. The CDE has and should continue to have a significant role in guiding the statewide expansion of the multiple pathways approach in California. To ensure that the CDE can serve as an effective lead agency, it needs adequate funding to be able to launch and sustain its efforts to create favorable conditions to expand pathways. A state-level advisory group would be a valuable part of an overall strategy to transform California's high schools to meet the challenges of the twenty-first century.

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Chapter 14. Cost and Budgetary Implications

INTRODUCTION

The expansion of the multiple pathways approach in California would offer services and activities that have not traditionally been available broadly to high school students across the state. Offering these services in schools may require realignment of programs with concomitant realignment or more strategic use of existing resources. Innovative use of community, industry, and other partner resources is also necessary. Examples include matching funds; industry contributions of equipment and time; employer participation in work-based-learning efforts; the partnership of community-based organizations in providing student support services; joint use of high school, community college, industry, and community facilities and equipment; and regional collaborative strategies to facilitate articulation and transitions to postsecondary education and employment. In addition, any examination of costs must address the cost savings to the state, as well as to districts, that may accrue as a result of the expansion of the multiple pathways approach. As described in this chapter, career academies, the most long-standing model of implementation using the multiple pathways approach, have been found to have one of the highest benefit-cost ratios among programs studied (Belfield & Levin, 2007a). With greater numbers of students enrolling in programs using the multiple pathways approach, savings to California taxpayers could offset the cost of pathway expansion.

In this context, this chapter examines some of the cost elements that must be considered when implementing pathways in order to inform resource allocation decisions at the school, district, and state level. The chapter then discusses resource allocation strategies and revenue sources available to the state and to local educational agencies (LEAs) to support the expansion of pathways.

RESOURCES REQUIRED FOR PATHWAY PROGRAMS IN THE MULTIPLE PATHWAYS APPROACH

Program evaluations of career academies and other existing pathway programs have focused primarily on student outcomes and have seldom estimated the costs. Therefore, little information is available about the resources required to start and operate pathways. The most relevant information comes from a 2009 study by Policy Analysis for California Education (PACE), which is used here to analyze school site and district costs (Parsi, Plank, & Stern, 2009). To estimate costs of pathway programs, the PACE study:

- Estimated actual resources used, rather than relying on budgets
- Focused on incremental rather than total costs, assuming a traditional comprehensive high school program as the basis of comparison
- Distinguished between start-up and ongoing costs

PACE Methodology

To determine true costs, PACE did not rely on budget documents, but rather estimated actual time spent on pathway components. In schools, the main costs incurred to “produce student learning” (including counseling, other student support and experiences, and leadership and administration, in addition to classroom instruction) are represented by the time spent by teachers, principals, counselors, and other school personnel. The time of school staff and teachers is budgeted and paid for, but budgets and expenditures are often not available for particular programs *within a school*, or even for particular schools within a district. In addition, many teachers working in pathways donate additional hours, as do external work-based partners who work with students; while these contributions do not appear on school district budgets, they represent real costs.⁵⁵

Once the amount of time is known, its monetary value can be calculated using the teacher’s rate of pay. This is what Levin has called the “ingredients” method for determining program cost (Levin & McEwan, 2001; Chambers, 1999). For instance, using an estimate of how many hours the teacher spends on the program during a year, and multiplying this by the average teacher’s hourly wage gives the estimated cost in dollars.

The PACE study also focused on incremental rather than total cost. The incremental cost is the amount of additional resources required to operate pathways, compared with a traditional high school program. Examples of incremental costs are the additional time required for school staff to provide work-based-learning opportunities for students and the additional cost of special equipment or facilities needed at the school to teach the pathway theme (for example, health professions, performing arts, or manufacturing technology).

The PACE study also tried to account for cost savings that may accrue. For example, if teachers in pathway programs can spend less time writing referrals for misbehaving students, that would be a real saving. Incremental costs (and savings) are most relevant for policymakers, because they reveal the resources required to expand the program.

Costs at Program Sites

PACE distinguished two main kinds of incremental costs: start-up and ongoing. Whereas ongoing additional costs recur every year and are primarily based on staff and teacher time, start-up costs include planning time; program development; equipment purchases; and the cost of new or remodeled facilities, if any.

⁵⁵ Even if budgets were available, they are not necessarily accurate accounts of expenditures. For example, a California Partnership Academy might submit a budget to the state with a line item of \$10,000 to buy 20 percent release time for a teacher whose annual salary is \$50,000. This \$10,000 allocation is what economists call an accounting cost estimate. It represents a *claim* on the teacher’s time, but not necessarily the amount of time actually spent. The true resource cost is the actual amount of the teacher’s time spent on the program.

Start-Up Costs

Of the ten programs studied, PACE obtained retrospective reports on the resources required for start-up at the seven programs that started most recently. These resources are grouped into three categories:

- Time of teachers, administrators, and other staff for planning and design (translated into dollars by using the California average hourly wage for each type of participant)
- Purchases of equipment, curriculum, instructional materials, software, technical assistance, or professional development specifically required for the pathway programs (not including spending on general-purpose materials or equipment, such as desks)
- Spending on facilities or remodeling specifically related to the pathway (not including spending on general-purpose facilities, such as classrooms or the cafeteria)⁵⁶

The PACE study converted start-up costs to an annual basis by assuming that facilities last 30 years, equipment lasts five years, and the results of initial planning and program development also last five years. The total start-up cost per student, not annualized, ranged from \$219 to \$8,854. On an annualized basis, it ranged from \$36 to \$624. Annualized start-up cost per pupil was under \$200 except in two sites with large expenditures on new facilities or equipment. Excluding facilities and equipment, most of which was for CTE-related activities, the median annual cost of start up in administrator, teacher, and other staff time was \$104 per student for five years.

Ongoing Costs

The PACE study based its ongoing cost findings obtained from ten pathway sites that included three kinds of approaches: (1) career academies, (2) self-contained, stand-alone high schools, and (3) semi-autonomous high schools sharing a campus with others.

Methodology. The methodology is presented here because it highlights the activities required to implement pathways, as described in previous chapters, in addition to explaining how cost estimates were arrived at. PACE asked teachers, counselors, and principals how much additional time, if any, they spent on specific activities related to pathway programs, compared to what they would do in a traditional high school. These activities included recruiting or selecting new students for the program; participating in professional development specifically related to the program; planning curriculum and instructional activities; working on the master schedule; providing extra academic support, personal support, or guidance to students outside of class; planning, monitoring, or evaluating students' work-based learning; interacting with employers or other community partners about the program; interacting with students' families about the program or about their students; purchasing curriculum, materials, equipment, or software; writing proposals for additional funding for the program; compiling, recording, analyzing, or reporting data about the program; talking with other teachers or school staff about particular students; and supervising student activities after school. Principals also were asked how much time community partners spent providing work-based-

⁵⁶ Two new programs had not yet reached their target enrollments. In calculating start-up costs per student, PACE divided by the total enrollment that the programs eventually expected to reach, not by the smaller number of students actually enrolled in 2008–09.

learning opportunities for students. In addition, respondents were asked whether they spent less time on any activities, compared to what they would do in a traditional high school program.

PACE added up the extra hours per week each respondent reported spending on pathway-related activities during the school year, subtracted the number of hours per week reportedly saved as a result of being in a pathway, and divided the resulting net additional hours by 40 to express the extra time as a fraction of a full-time equivalent (FTE) person.

Laguna Creek's Manufacturing Production Technology Academy

Laguna Creek in Elk Grove had the lowest annual ongoing cost per student at \$505 per student per year above the cost of a traditional program. The program has been evolving since the school opened in 1994. Currently, the academy has approximately 180 students enrolled and provides a rigorous four-year program that allows students hands-on mastery of virtually every aspect of modern-day production and manufacturing. While the program reported the highest level of counseling time devoted to its students, additional teacher time required during the school year was the lowest of all the sample schools.

To calculate the cost of additional time spent during the school year, the study multiplied the FTE for teachers, principals, and counselors by the average salary paid to each of those positions in California. For lead teachers, PACE used the average salary for teachers with more seniority; and for work-based learning partners, the overall average wage in the state was used.⁵⁷

The additional cost includes time spent during the summer as well as during the school year. This cost was calculated from the reported amounts of time spent during the summer, multiplied by average hourly wage for California teachers or administrators.

Findings. PACE found that the annual additional cost of operating pathways, excluding the cost of work-based learning partners' time, ranged from \$505 to \$1,937 per student at the ten program sites. The median additional operating cost was \$1,138 per student. Teachers' extra time spent on pathway activities was the largest component of additional cost at all sites except one. Staff time

⁵⁷ Statewide averages are more relevant than compensation paid because the purpose was to inform state policymakers about the cost of expanding pathways. The average salary from 2007–08 for teachers was \$65,808 (90 reports summarized at <http://www.cde.ca.gov/ds/fd/cs/index.asp>). For teachers, the study distinguished between lead teachers, who had extra responsibilities for coordinating the pathway program, and non-lead teachers. For lead teachers, PACE used the state average of the "highest schedule salary offered," which was \$78,925. Salaries for high school principals in 2006–07 were obtained from the CDE 2008 *Fact Book* (<http://www.cde.ca.gov/RE/pn/fb/documents/factbook2008.pdf>). The average salary for high school principals was \$110,020. The average counselor salary was \$69,682, from the Association of California School Administrators, *Salaries and Wages in California Public Schools 2008–09*. The average hourly wage for civilian full-time workers, used to calculate the cost of work-based learning partners' time, was \$20.44, from the 2008 National Compensation Survey (<http://www.bls.gov/ncs/ocs/sp/nctb0161.txt>). Fringe benefits are not included in calculations.

during the summer was the next largest additional cost. Of these components, coordination within the pathways (a unique feature of pathway operations), including recruitment of students, joint planning and curriculum development, scheduling, interactions with students' families, and related activities typically comprised roughly 90 percent of the cost. Outreach to the business community, as well as placing and monitoring students in work-based learning, which would occur in high-quality, stand-alone CTE programs, typically represented about 10 percent of the additional cost.

Among these ten programs, the additional operating cost per student appears to be related to the year the program started. The four programs that started after 2003 have the highest estimated additional cost per student (see following figure). The two programs that started before 2003 have the lowest cost. This cost suggests that as staff gain experience with the pathway program, they spend less additional time on curriculum and professional development specifically related to the program, and annual routines, such as recruiting students and constructing the master schedule, become more streamlined. It may be that if these costs related to curriculum and professional development can be supported at the state level through infrastructure development, then ongoing local costs can be held to the lower end of the spread.

In addition, the three self-contained high schools were the most expensive to operate, and this estimate does not include the cost of additional facilities. The three semi-autonomous high schools on shared campuses had lower costs per student than the self-contained high schools. Two career academies had higher costs per student than the semi-autonomous high schools, and two had lower costs.

Total Cost at the Site Level: Start-Up Plus Ongoing Operation

An estimate of the total cost per student at pathway sites is represented by combining annualized start-up costs and ongoing costs. For the seven sites where PACE could estimate start-up costs, the total cost per student ranged from \$1,111 to \$2,436, with a median cost of approximately \$1,500 per student. Because these are the most recent start-ups, their ongoing costs were relatively high.

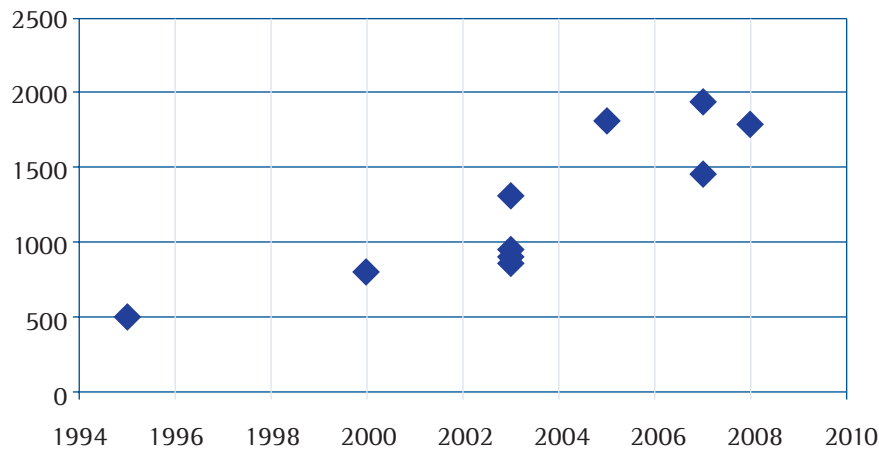
The cost estimates from the PACE study are approximations, subject to measurement error and possible unknown bias. It may be that asking respondents how much time they spent on various activities compared with the time they would spend on similar activities in a traditional high school caused an overestimate of the extra time required, because respondents may have underestimated the time needed in a traditional setting.

District-Level Information

The PACE study does not provide estimates of district-level costs for pathway start-up and implementation. Although it provides information about start-up activities at the district level, it does not quantify these data. PACE analyzed proposals that five districts submitted to ConnectEd for multiple pathways implementation grants from The James Irvine Foundation. The proposals described extensive planning and design activities, including:

- Creating local coalitions to engage stakeholders, including parents, community partners, and higher education partners

FIGURE 1. Additional Operating Cost per Student (in \$), by Starting Year of Program



- Assessing community needs and resources
- Visiting pathway programs in other districts
- Organizing subcommittees of school and district employees to plan specific pathway components
- Writing proposals for additional funding
- Planning new facilities

Since there are no examples of district-level multiple pathway systems in operation, no information is available on these ongoing district-level costs. However, the ongoing operational costs at the district level would primarily include:

- A process for assigning students to pathway programs at various schools, based on students' preferences and available space
- Transporting students who attend school sites other than their neighborhood high school (unless this is considered the responsibility of students and families)
- Collecting and analyzing data on student performance in pathway programs

Statewide Infrastructure

While districts, schools, and teachers want to implement pathways in ways suited to their own communities' needs, they also need and want support. In fact, given teachers' and counselors' time constraints and other challenges districts and schools face, access to tools and resources could "tip" districts and schools toward adoption of pathways.

As described in previous chapters, support needed includes such things as integrated curricula, tools, models, and technical assistance to facilitate high-quality implementation. Specifically, three kinds of statewide infrastructure, identified earlier as important to support pathway expansion locally, could

require a public investment. While some of this work could be handled locally, statewide support for the following activities would facilitate local implementation and signal this initiative's importance.

Development or refinement of curricula and tools by industry sector. Currently, integrated curricula exist in several of the 15 industry areas, but they are not readily available to all schools. A comprehensive set of four courses for each of the 15 industry sectors is needed that teachers can adapt for their classrooms and communities and that serve as a point of departure for teachers to develop other courses in a given industry area, utilizing CTE Online, the *Career Technical Education Model Curriculum Standards*, the *Career Technical Education Framework for California Public Schools*, and other resources. It is estimated that the development of a single course would cost approximately \$50,000 or \$200,000 for a four-course sequence. This figure includes development, research, alignment with industry standards, alignment with academic content standards, a-g approval as appropriate, writing and editing, and pilot testing.

Expansion and linking of Web-based applications to house and facilitate the use of curricula and tools. As described in *Multiple Pathways to Student Success*, a number of Web sites currently exist to support the development of high-quality CTE courses, promote peer-to-peer learning, share grant-specific information, and promote career exploration. Lacking currently, however, is a site that could serve as the repository for the integrated curricula and tools described earlier. Also lacking is a Web site that maintains an up-to-date statewide inventory of pathways by industry to facilitate peer-to-peer learning across disciplines and funding streams, employer linkages with schools, provision of technical assistance by industry sector, and monitoring the expansion of pathways with various funding sources. Such a Web site could also organize employer information by industry and geographic location and facilitate work-based learning by providing tools for employers to engage with their local districts and schools. In addition, no Web site exists statewide that allows for the posting of digital portfolios that can be created and accessed by students, educators, and employers, beginning in the middle grades and spanning high school and beyond. Such a central site could ensure that career exploration and planning begun in the middle grades would inform counseling and guidance in high schools, and would enable students to maintain a digital record of their accomplishments irrespective of the school they attend.

The existing Web sites could be linked, and the state could consider expanding existing Web sites or developing a Web structure that would serve as a portal to all of these sites. New functionalities would further enhance pathway implementation. A "super site" to link other sites, plus additional functionalities that include planning, engaging stakeholders, designing, and developing the portal has an estimated cost of approximately \$500,000 for start-up and \$150,000 per year for implementation.

Development of a "virtual high school" or support for local development of "virtual high schools" to enable students to flexibly take all the courses needed to complete a rigorous pathway. Online instruction has become a key component in K–12 education throughout the United States. Some research organizations are predicting that as much as 50 percent of instruction may be offered online within ten years. An *Education Week* article (March 18, 2009) concluded that educators throughout the United States are currently looking at virtual education as a cost-effective way to get high-quality coursework to more students.

Implementation of the multiple pathways approach could be greatly facilitated and enhanced by access to a robust and cost effective online delivery system for several reasons:

- **Geographic access.** Pathway expansion will be incremental, and in some geographic areas, a full range of pathways will not be available for a number of years. In some rural communities, a full complement of pathways may never be available. Given limited job options in some of these communities, concern for equitable access to opportunities suggests that online approaches should be explored.
- **Course mastery and credit recovery.** Pathway curricula are rigorous; students will need support to master content, and some students will need credit recovery opportunities so that they can succeed in their pathways and graduate on time. Online programs can offer some of the remediation that students need without taking valuable and limited time out of their schedules, enabling them to keep up with their pathway cohort in both CTE and academic coursework. Ensuring students' ability to complete their courses with their pathway cohort is also critical for the integrity of the pathway itself. An online solution would also serve as a cost-effective alternative to after-school programming.
- **Diverse student needs.** Online options can meet diverse student needs, including those of pregnant and parenting teens and foster youth. Online courses enable students to stay connected with their pathway cohort and with the pathway course content, even if they are away from school or transferring from school to school. Again, equity of access for these most vulnerable youth suggests a need for online alternatives to traditional programs.

A BellSouth Foundation report (Anderson et al., 2006), based on interviews with numerous providers, including Florida Virtual School, University of California College Prep Online, and the Southern Regional Education Board, found that costs fall into two categories: start-up costs and ongoing costs. Results suggest that a new program will require about \$1.6 million to adequately fund start-up activities in year one before providing instruction, and then between \$3,650 and \$8,300 per FTE student depending on program type, size, and quality, and level of investment into research, development, and innovation. These latter ongoing costs could conceivably be shared between the state and local districts depending on the level of student participation.

Given that the intention of providing a virtual program in the context of the multiple pathways approach would, in many cases, be to facilitate remediation without impacting students' school-day schedules, a per-pupil estimate for a single course was sought. Cyber High School, developed and operated by the Fresno County Office of Education, offers one such estimate. The cost for a single five-unit semester-long course through Cyber High School is \$80 per course. In another example, from eScholar Academy, based in Red Bluff, California, the cost for a student who takes all of her courses online from home is approximately \$3,225 per student or less than half of the yearly cost of a student taking courses on-site in a traditional high school.

Placing Cost in Context

Before considering the implications of these cost estimates, it is important to understand the estimates in context. Savings that may accrue, comparisons with the costs of other high school

reform efforts, recognition of other state expenditures aimed at engaging students in learning, and comparisons with the cost of a high school education in other states are all relevant.

Positive Benefit–Cost Ratio and Other Cost Savings

The costs identified in the PACE study do not take into account the long-term savings that may accrue from the expansion of the multiple pathways approach. Pathways may cause more students to complete high school, attend postsecondary education, and eventually find more stable and well-paid employment. If so, the additional taxes they pay, and the public costs they do not generate for crime, illness, and welfare could substantially offset the cost of program expansion. Belfield and Levin (2007b) estimated the lifetime savings an additional high school graduate would generate at the state and local level in California at \$53,580, even after including the additional costs of continuing to educate students who otherwise might have left the system. In addition to these state and local savings, Belfield and Levin project an additional savings of \$115,300 at the federal level.

In a companion paper, Belfield and Levin (2007a) computed benefit-cost ratios for California taxpayers of six programs that have been demonstrated to reduce high school dropout rates, and another eight programs that showed promising evidence of dropout reduction. Belfield and Levin classified career academies in the latter category and found that academies had the second-highest benefit-cost ratio among all 14 programs they considered. If these benefits occur when larger numbers of students enroll in career academies and other programs using the multiple pathway approach, the cost to California taxpayers of program expansion would be significantly offset and perhaps even fully repaid.

As described earlier, the PACE researchers observed that more well-established pathways had lower operating costs than newer pathways. The CDE is exploring the expansion of the multiple pathways approach carefully, because the intention is to foster long-term sustainable change. As change takes hold, therefore, one would expect many programs to experience reduced costs over time. In addition, if policies change to enable greater flexibility in school structures, time, use of facilities, use of technology for teaching, learning and assessment, and other areas, additional cost savings may be possible.

Finally, investment in a supportive statewide infrastructure as described earlier, while not cost-free to the state, may lower local costs for districts; economies of scale due to statewide efforts may also reduce total costs.

Cost Comparisons

Other reform initiatives. The estimated additional per-pupil cost of implementing pathways using the multiple pathways approach should be compared with the cost of other similar reform efforts. In California, the cost can be compared with the amount the state gives districts to pay the additional costs of California Partnership Academies, currently about \$800 per student. If each academy student is considered as 0.45 of a full-time student, this translates to \$1,778 per FTE student, which

is comparable to the \$1,500 estimate of the typical total incremental cost for students in pathways implementing the multiple pathways approach.⁵⁸

While not focused on all of the components of the multiple pathways approach, federal Small Learning Communities (SLC) grants offer a perspective against which to compare the start-up costs for pathways. (SLC grants do not fund ongoing operations.) Actual per-pupil costs are not available, but the general funding formulas are based on school enrollments. For example, in 2007 (the most recent data), schools with enrollments of 1000-2000 students were eligible for five-year grants of \$1 million to \$1.25 million (<http://www2.ed.gov/programs/slcp/faqs2007.doc>). This translates into \$500 to \$1,250 per student for five years, or \$100 to \$250 per year. These numbers are the same or higher than the annualized median start-up costs for pathways of \$104 per student, when facilities and equipment were not included, as described earlier.

Alternative schools and other programs. Another important comparison is with the costs of continuation high schools — where many struggling and disengaged students find themselves — and of other programs serving students facing challenges to success. Prior to the placement of the Continuation High School Foundation Program into Pupil Retention Block Grants (PRBG) in 2005, districts received additional apportionment for continuation high schools, in recognition of the higher cost for serving students who are struggling in traditional academic programs. Due to categorical flexibility, it is currently impossible to determine the per-pupil cost associated with these and other programs in the PRBG, but the total allocation to districts based on the PRBG funding formula was nearly \$77 million dollars in the 2009–10 school year. In other words, California is already making a substantial investment in promoting student engagement; the multiple pathways approach offers one additional strategy that could compare favorably with these alternative school options.

ROCP support and CTE expansion. Currently, many programs implementing the multiple pathways approach, such as Palmdale High School, utilize ROCP resources to augment district average daily attendance. While it is impossible to calculate the additional ADA per student contributed by the ROCPs, with an annual budget of close to \$400 million and serving approximately 550,000 students per year, it can be estimated that ROCP funding already provides a significant augmentation to current ADA to support students in CTE, including work-based learning.

In addition, some of the costs identified in the PACE study are associated with strengthening the CTE component of pathways, including work-based learning, which has languished in recent years, and with promoting relevance in academic subjects, which is arguably necessary irrespective of the implementation of the multiple pathways approach. It is anticipated that if the state were to continue to expand CTE as described in the *2008-2012 California State Plan for Career Technical*

⁵⁸ Adjusting for FTE in career academies: Career academy students typically take about half of their classes in the academy, and the other half (such as languages other than English, advanced science or math, physical education, and various electives) outside the academy. A previous study analyzed student transcripts and found that academy courses typically comprised 45 percent of all courses taken by academy students (Stern et al., 2007). As a result, when PACE calculated cost per academy student, the number of academy students was multiplied by 0.45 to convert to FTE. For example, if an academy enrolls 200 students, the total number of academy classes that need to be taught is equivalent to the number of classes taken by 90 full-time students. Since the other pathway programs enroll students full-time, this adjustment makes the per-pupil cost estimates for academies comparable with those for the other programs.

Education, irrespective of expansion of the multiple pathways approach, some of the additional costs attributable to the multiple pathways approach would be included in the CTE expansion.

The cost of education in the U.S. Finally, the incremental cost of implementing pathways can be also compared with per-pupil expenditures in other states. In 2007, California ranked 29th in the nation in per-pupil expenditures, at \$8,982. An additional \$1,500 per pupil would increase California's ADA to \$9,683 — raising its ranking to only 16th place, to a per-pupil level well below those of states in first and second place.⁵⁹ From this perspective, the per-pupil cost when implementing the multiple pathways approach would still be significantly lower than the per-pupil cost in many other states.

SUPPORTING THE EXPANSION OF THE MULTIPLE PATHWAYS APPROACH

In the short-term, given California's current fiscal crisis, it is unlikely that new resources will be available to fund expansion of the multiple pathways approach. Therefore, leveraging existing resources is necessary. In some cases, the additional resources might also be obtained by phasing out other local programs or activities. Reallocating expenditures within schools or districts may be both possible and wise, but whether and how that should be done is a local decision.

At the state and federal levels, existing resources already targeted at improving secondary instruction are available to support modest initiatives. These funds include efforts to improve high school completion rates, high school graduation rates, and CTE. Among the recent key state-level policy changes was the passage of SB 70, which initially allocated \$20 million targeted to career technical education. SB 1130 expanded this commitment by allocating \$20 million in additional funding, plus \$32 million each year through the 2013–14 fiscal years. A total of \$48 million was allocated in 2008–09. This funding has allowed K–12 districts and California community colleges to expand programs aimed at improving secondary education outcomes and career opportunities for students.

Furthermore, when California recovers economically and pays back the approximately \$11 billion in the Proposition 98 maintenance factor,⁶⁰ existing programs can provide models for how the state can support the expansion of pathways.

The Future of Funding for Expanding the Multiple Pathways Approach

Fiscal years 2008–09 and 2009–10 have been challenging for California and LEAs. The state has reduced education funding by approximately \$20 billion during these years, which translates to a 20 percent reduction in most program resources. In addition, the state has provided flexibility to

59 By contrast, the 2007 ADA for the states in first and second position respectively were \$16,163 (New Jersey) and \$15,546 (New York).

60 Under the provisions of Proposition 98, funding is adjusted upward or downward based on growth or decline in per capita personal income or state general funds. In years where state general fund growth lags personal income growth, the formula provides for a tracking of this difference (referred to as the maintenance factor), which is repaid in years when the state economy exhibits strong growth.

LEAs related to the use of many funding programs that had previously been restricted.⁶¹ Among the categorical programs that are affected by the flexibility are programs that have been used by LEAs to support CTE and other high school programs. Included are ROCs, Specialized Secondary Programs, and AB 1802 secondary counselor grants, as well as Pupil Retention Block Grants. Adult education programs were also affected. It is not yet known to what extent LEAs have exercised available flexibility to alter funding provided in support of such programs.

Notwithstanding the current economic downturn, over the past decade, California has launched a number of initiatives with a focus on secondary education. These initiatives included AB 1802 secondary counselor grants, increases for California Partnership Academies, and CAHSEE intervention. A career technical training initiative followed, launched by the Governor in 2005, which provided one-time funding to both the CDE and the California community colleges for new programs, equipment, and supplies.⁶² In addition, in November 2006, California voters passed a \$10.4 billion school facilities bond — Proposition 1D, the Kindergarten–University Public Education Facilities Bond Act of 2006 — that for the first time included a significant share of funds (\$500 million) for building or modernizing CTE facilities located within comprehensive high schools. It also allowed for the purchase of CTE equipment. This amount was matched by local sources from LEAs, businesses, and labor.

Considering the current structures for providing funding to LEAs, many options should be considered as the state and LEAs plan to support the expansion of the multiple pathways approach. Following is a description of the options that are currently available for LEAs with examples of specific resources.

School District Reallocation of Resources, Matching Funds, and Incentive Funding

The amount of money that any school district receives through direct grants or partnerships is a small part of its overall operations. Most of a district's funding supports the general operating needs for schools. Supplemental programs add to the general education program, but in the ideal implementation model, pathways are integrated seamlessly into the operations of high school programs. As a result, it is important to recognize the role that local districts and schools have in managing local resources to support all students' educational needs, which may include implementing the multiple pathways approach. Policies offering greater discretion to schools and districts in the use of time and facilities would facilitate effective management of local resources in support of pathway implementation.⁶³

The state can approach local district support for pathway expansion in the manner it has to date — that is, the state can simply allow for the option — or it could move toward requiring contributions from districts. Examples of this are the matching requirements in place for California Partnership Academies and After School Safety and Enrichment for Teens (ASSETs), which designate support for

61 The State Budget Act, enacted in February 2009, included provisions that eliminate the rules and requirements for 42 categorical programs. LEAs are allowed to use such funding for any educational purposes from 2008–09 through 2012–13.

62 Funding for this initiative (SB 70) declined by \$5.2 million in 2008–09. This program was also subject to reductions in 2009–10. Funding may not be shifted to other purposes.

63 For more information, see Chapter 6.

such projects. The current fiscal crisis that local districts face will make it difficult in the short-term to encourage or require local district contributions to implementing the multiple pathways approach, but such contributions should not be overlooked in future planning.

Another approach would be to allocate some portion of existing state resources to be used to provide incentives for pathway expansion – including corresponding implementation strategies, such as small learning community structures and co-location strategies – as a means to enhance student engagement, persistence, or other goals for student performance. Incentives would be tied to the attainment of the specific goals, as measured by such indicators as increased graduation rates.

Existing State and Federal Funding Sources

The state has sustained and, in recent years, increased the amount of funding available to LEAs to create or expand pathways. For example, California Partnership Academies are primary examples of cross-disciplinary pathway programs that have been supported by the state since 1981, escaping categorical flexibility in 2009. Specialized Secondary Programs, while currently in flexibility, have also been used to support themed pathways in many schools. Other state resources, such as AB 1802 secondary counselor grants, and ROCP have been used to fund key pathway components – counseling and CTE, including work-based learning, respectively. In the 2010–11 budget, the line item for ROCPs is over \$383 million. In addition, the passage of SB 70, the CTE Pathways Initiative, while subject to recent reductions due to the fiscal crisis, provides a major increase in available state funding to support pathways using the multiple pathways approach. SB 70 supports the expansion of “green” California Partnership Academies, the development of CTE course sequences, and specific pathway components, such as middle grades career exploration, among other initiatives. Further, several existing federal funding sources support pathways including, but not limited to, Perkins grants and SLC grants.

The San Diego Met High School

The Met program in San Diego – using an innovative model within the multiple pathways approach – is paid for entirely with ADA and ROCP funding, which covers the salary of the program’s instructor/internship coordinator. As an alternative school, The Met receives an elevated ADA, as do other alternative education programs in the San Diego Unified School District. The school does not receive any additional funding for special or categorical programs that many comprehensive high schools receive, despite the fact that many of the students qualify for the reduced-price meals program – just “one lump sum to keep the students in school and show results,” as the principal explained. In addition, placement on the campus of Mesa College – a California community college – saves on facilities costs (Darche, Nayar, & Bracco, 2009).

SB 70, California Partnership Academies, Specialized Secondary Programs, Perkins grants, and SLC grants require an LEA to apply for funding with a plan for how the funds will be used to meet the program requirements, which may include infrastructure or program activities consistent with the

implementation of pathways using a multiple pathways approach. AB 1802 and ROCP funding could also be linked more tightly with the implementation of the multiple pathways approach.

Adult education, also currently in categorical flexibility, supports young adults in obtaining their high school diplomas or GED certificates, in addition to serving the literacy and workplace needs of working adults and addressing other local needs. Adult education can support the aims of the multiple pathways approach in several ways: by focusing its resources more strategically to Adult Basic Education, Adult Secondary Education, ESL instruction, and CTE; focusing on geographic areas of greatest need; aligning its efforts to career pathways; using innovative contextualized strategies to facilitate student learning; creating learning environments that can expand high school in ways that are appropriate and motivating for young adults; and leveraging its partnerships to transition students efficiently to postsecondary education and careers.

A variety of funds are also available to LEAs as entitlement grants based on need and other formulas, generally tied to the level of students that are low income and/or low achieving in a school agency. Examples of this type of funding include, but are not limited to, Title I and Economic Impact Aid. Pupil Retention Block Grants (<http://www.cde.ca.gov/fg/fo/profile.asp?id=1675>) also fall into this category. LEAs are directed to use this type of funding to meet the needs of their at-risk (e.g., lowest performing and lower income) students through supplemental services, which could certainly include activities related to the multiple pathways approach. For example, LEAs have received Pupil Retention Block Grant funds since 2005. While, as mentioned, these funds were placed in flexibility, nonetheless, the total of nearly \$77 million for the 2009–10 school year represents a significant current investment in ensuring that at-risk students stay engaged and graduate from high school – some of these funds could be made available to support student engagement through the multiple pathways approach.

New State and Federal Funding Sources

While it is unlikely due to the state's fiscal crisis that any new state resources will be provided to LEAs in the coming years, the state and LEAs can use new federal programs to support expansion of the multiple pathways approach. Among these new opportunities are several programs supported by the American Recovery and Reinvestment Act (ARRA), including the Innovation and Improvement Fund and School Improvement Grants.

Although these funds are not specifically for approaches like the multiple pathways approach, each could be used in some measure to support the expansion. For example, the \$3.5 billion in Title I School Improvement Grants to support states' efforts to reform struggling schools and focus on implementing turnaround models in the lowest-performing schools can also be used for schools implementing pathways as a turnaround strategy in eligible schools.

In addition, ARRA includes some support for workforce development targeted at youth ages 14 to 24, through the Workforce Investment Act (WIA). Such funding flows from the state to WIA local WIBs that have in place structures for supporting youth. A portion of this funding was used in summer 2009 for youth job creation, but there is a potential to collaborate between agencies (specifically K–12 education, community colleges, and local WIBs) to leverage remaining funding to support existing educational initiatives aimed at improving secondary educational and career-focused outcomes.

Philanthropic Support

Another resource that a few LEAs have used to develop and implement the multiple pathways approach has been from foundations and other philanthropic support. For example, The James Irvine Foundation awarded grants to LEAs and universities to promote the implementation and expansion of the multiple pathways approach. Other foundations, while not explicitly supporting the multiple pathways approach, have significant initiatives to support college preparation.

Matching Funds: Contributions from the Business Community

Matching funds have been a critical part of several existing funding sources. The matching requirements have provided an incentive for LEAs to reach out to their business communities to leverage resources and forge partnerships. For example, state funding of California Partnership Academies requires:

- An amount equal to a 100 percent match of all funds received from the state, in the form of direct and in-kind support provided by the district
- An amount equal to a 100 percent match of all funds received from the state, in the form of direct and in-kind support provided by participating businesses or other community organizations

Likewise, 21st Century ASSETs requires a match by the district and/or business partners. In addition, in many instances where matches are not required for programs, business and community partners contribute time, facilities, equipment, funding, and other resources. Aside from the California Partnership Academy business and community match, the level of business and community contribution is not tracked by the state. In 2008–09, over \$20 million in California Partnership Academy grants were awarded with commitments of at least an equal amount in matching funds from local districts and from businesses and other community organizations. Thus, the state leveraged \$20 million into a \$60 million contribution. As reported in the 2002 state evaluation of the school-to-career initiative, industry is supportive — especially when it sees its contributions to education as an investment in California's future workforce, as well as one that benefits the students (WestEd, 2002).

CONCLUSION

The expansion of the multiple pathways approach in California offers a wide range of benefits for students and high schools — and these benefits may yield long-term savings to California taxpayers in the form of reduced costs associated with health, crime, incarceration, and welfare. By reaching higher skill levels, California students will be more competitive in a national and global economy. In the short-term, the expansion of pathways using the multiple pathways approach does bring additional costs to the state and to LEAs when compared to the cost of a traditional high school. However, these costs are comparable to the state's current per student investment in California Partnership Academies, and some of these costs are already borne through funding to ROCPs that expand the school day for students in pathways, and for alternative education and other programs dedicated to supporting student engagement and success.

In addition, some of the costs for the CTE and work-based-learning components, as well as for facilities and equipment, would be incurred with the expansion of California's CTE system, irrespective of the multiple pathways initiative. At the local level, the major cost of implementation involves the extra staff and teacher time required for the four core pathway components as compared with traditional high schools. Based on the results of the limited study of ten sites by PACE, it appears that the ongoing costs of pathways may decline as staff gain experience and as supportive processes become more streamlined. In addition, infrastructure costs at the state level could, over time, reduce local costs by providing improvements and supports for LEAs. While the level of funding available to support the expansion of the multiple pathways approach has been reduced with the budget reductions of 2008–09 and 2009–10, a sizeable number of programs still exist that may provide a structure for future investments in this approach to high school reform.

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Chapter 15. Recommendations

The policy recommendations in *Multiple Pathways to Student Success* set forth a bold vision for improving California's high school system — a system of rigorous pathways that will prepare all students for postsecondary education and careers. Given the extensive nature of the following recommendations, the intent is to provide an agenda for change through the year 2020.

Following the policy recommendations, an action agenda is presented for immediate consideration and implementation during the 2010 and 2011. More extensive system changes need to be considered and debated over the next several years to set the stage for implementing substantial improvements in the state's high schools as the economy and the school systems' financial conditions improve.

California's high school system was designed early in the twentieth century, but it is struggling to prepare students for transition to postsecondary education or careers in the increasingly competitive global economy of the twenty-first century. Californians must therefore engage in crucial conversations about the future of the high school system, and then take bold steps to provide opportunity and access for all students to reach their goals and achieve their dreams.

BACKGROUND OF RECOMMENDATIONS

Assembly Bill 2648 required the State Superintendent of Public Instruction (SSPI) to develop a report that explores the feasibility of establishing and expanding pathway programs in California. The legislation was comprehensive and identified 17 components of California's secondary educational system crucial to advancing the multiple pathways approach. At the SSPI's direction, each of these topics was extensively researched and examined, with key issues and findings identified.

Respondents interviewed in the course of gathering information to fulfill the requirements of AB 2648 for this report noted that it is imperative to improve secondary education in California. They also agree that substantial changes are needed if we expect to have a system that is designed to move everyone to their highest educational and career potential. The information gathered on the current practices confirms that if implementation of the multiple pathways approach is to succeed, then California must transform secondary schooling in California.

Throughout the research for *Multiple Pathways to Student Success*, one of the top concerns expressed by students, parents, teachers, and administrators is the large number of high school students described as disengaged. While these students attend class, they have little motivation or interest beyond making it through to the passing bell. Students who fall behind are often scheduled into double doses of mathematics and English or are made to repeat the same courses, under the premise that if they spend more time in the subjects they failed, they will somehow discover a path to success. In some cases, students are fortunate enough to connect with a motivating teacher, administrator, or community member who mentors them; become engaged in a career technical education course that inspires them; or to find sports or extra-curricular activities that motivate

them and bring meaning to their high school experience. For many California high school students, these motivators are simply not available or accessible.

The recommendations presented here were developed in response to the legislative purpose of exploring the feasibility of establishing and expanding the multiple pathways approach to high school transformation. However, the recommendations are far-reaching in recognition that successful implementation of pathways represents a bold departure from our current methods of educating high school students. The recommendations reflect major considerations for substantially transforming secondary education in California.

Examining the feasibility of implementing the multiple pathways approach has provided a platform for ensuring that California's students are prepared to graduate from high school ready to take full advantage of postsecondary education and career options. The policy recommendations presented here for transforming secondary education in California align with the national agenda to ensure that all students graduate from high school ready for both postsecondary education and careers.

Two types of policy recommendations emerged from the report. First, recommendations were developed that were specific to the effective implementation of the multiple pathways approach. Secondly, recommendations were identified for creating changes within the secondary education system deemed essential for the multiple pathways approach to flourish. Both types of recommendations are necessary for creating the systemic change that can make pathways a common feature throughout the state's high schools and school districts.

Recommendation Criteria

To ensure the policy recommendations were clear, consistent, and credible, the following criteria were utilized. The recommendations:

- Address the reporting requirements of AB 2648.
- Support local decision-making and flexibility to the fullest extent possible.
- Articulate roles at the state, regional, and local levels.
- Are congruent with current educational reform policy.
- Promote innovation and systemic change to improve secondary education — and transitions of students among the segments from one segment to another — from the middle grades and to postsecondary education — and into career opportunities.
- Are aimed at improving outcomes for all students, closing the achievement gap, and reducing the high school dropout rate.
- Are actionable.

The policy recommendations are arranged in broad content areas that mirror both the report's content and the concepts within AB 2648. While individual recommendations can be considered as separate policy actions, the recommendations, when considered together, hold the greatest promise

for transforming California's decades-old high school system into a performance-based educational system dedicated to preparing all students to be successful in postsecondary education and careers.

A VISION FOR CALIFORNIA HIGH SCHOOLS

The policy recommendations outline a vision for transforming California's high school system. The vision includes new policies and practices that fundamentally change the orientation of the high school experience from one in which time is the constant and learning is the variable to one in which learning is the constant and time is the variable. A transformed system would provide multiple rigorous programs of study, structures, and practices to ensure student success and accountability for results. Attaining this vision requires fundamental changes within the system.

To begin, the state must continue to identify the knowledge and skills necessary for all high school graduates to be both postsecondary and career ready. Second, the high school system must be based on students' mastery of the identified knowledge and skills. This means the traditional method of earning credits and grades would be replaced with performance-based measures that local schools would use to advance students towards graduation.

Schools' effectiveness would be measured on the degree to which they are assisting students to remain in school and reach mastery. Funding for the system is proposed to change from a student's seat-time-based calculation to one that is based on both annual enrollment and performance. Such performance would be measured by the number of students remaining in school, making progress towards completion of a high school course of study, and reaching graduation.

In addition, the high school of the future must be smaller. California has a tradition of building large "shopping-mall" high schools. Many high schools have over 1,500 students, and some have over 4,000. Principals report that simply managing the large numbers of students to maintain a safe environment becomes the primary focus and that students do not make the personal connections so necessary during the transition from adolescence to adulthood. The high school of the future should embrace the principle that no student can be lost, and the school must work with the community to support students and families.

Furthermore, the curriculum and instruction must be relevant and engaging. Real-world problem- and project-based-learning experiences change the way students and teachers approach learning. Incorporating applied learning across all disciplines and assuring that every student is provided access to career technical education and work-based learning experiences foster both student engagement and relevance of curriculum. Business, industry, and labor must be engaged in more integral roles within high schools to help ensure the relevance and applicability of curricula. Dual enrollment and dual credit programs developed between school districts and higher education need to be expected features of high school to expand the range of curricular opportunities and to help create a postsecondary mind-set among high school students. Also, teachers and principals in the transformed high school system should receive high-quality, sustained professional development that incorporates team learning and problem solving as central features — mirroring the team-teaching and problem- and project-based approaches they will use in their classrooms. The instructional staff must work in partnership with faculty from the middle grades and higher education to help facilitate the transition

of students into and beyond high school. Further, vastly expanded use of modern technologies can increase the options for teachers and students to support learning and provide new methods for demonstrating and tracking mastery of curricular content.

Numerous examples already exist demonstrating that the components of a transformed pathways high school are feasible and effective. While these schools show promising results, they must be given the policy framework and incentives within which to continuously improve and flourish. The following recommended policies are intended to provide the environment that will lead to increased options and opportunities for student success in high school and beyond.

POLICY RECOMMENDATIONS

Revise the California *Education Code* and Make Other Structural Changes to Allow High Schools to More Successfully Meet Their Students' Needs.

- Revise the California *Education Code* to state the purpose of high school is to educate and prepare all students to be postsecondary and career ready upon high school graduation.
- Permit high school-aged students and their parents to choose the high school, curriculum pathway, and related programs that best meet the students' needs and goals.
- Base high school graduation on demonstrated competency and mastery of identified academic and career standards.
 - Establish a process for determining and adopting the academic and career standards necessary for success in first-year college courses, apprenticeships, and entry-level employment.
 - Determine student progress through high school based on mastery of grade-level, standards-based performance benchmarks and not on seat time.
 - Eliminate the California *Education Code* requirement that particular courses be completed for high school graduation and establish standards-based performance benchmarks that must be met for high school graduation.
- Adopt state policy indicating that school districts shall incorporate small-sized schools and smaller groupings of students within new and existing high schools.
 - Change state school facilities funding regulations and formulas to ensure high schools do not exceed a state-established maximum number of students.
 - Prohibit schools and districts that do not adopt small school or small learning community configurations from receiving state incentive funding.
- Require all high schools to involve community stakeholders and maximize the use of community resources within the planning and implementation of new high school designs or redesigns.

- Encourage and allow the co-location of community services within school facilities to maximize student learning opportunities and expand student support services.
 - Allow high schools to formalize long-term partnership agreements to locate high schools or high school programs within approved community, government, or business facilities.
- Allow continuously enrolled students to remain in high school or other appropriate educational programs until graduating from high school to increase available instructional support services.
 - Require school districts to adopt local school board policy on including adult students within the high school, which balances the needs of students with available school resources, student safety, and community resources.
 - Allow the blending of adult education programs, funding, and instructors within the design of high schools to assist in serving students ages sixteen years and older.
 - Provide adult education funding equitably to school districts based on the number of adults without high school diplomas and who are non-English literate, who are unemployed, and who are living in poverty, and to districts that demonstrate positive outcomes.
 - To ensure successful transitions to postsecondary education and careers, limit adult education funding to providing adult basic education, adult secondary education, English-as-a-second-language, and career technical education services.
- Extend the school day and school year to meet or exceed the average of other countries with advanced economies.
 - Phase in the extended school year over a ten-year period.
 - Provide extended-day schedules that expand student options for access to learning that meet their individual needs. The extended day provides students with additional opportunities for earning benchmarks towards graduation in areas including CTE, visual and performing arts, work-based learning, service learning, physical education, after-school programs, dual or concurrent postsecondary courses, and other intra-curricular activities.
- Allow and encourage cost-effective mergers of K–12 school districts, adult education programs, ROCP, and community college districts to increase opportunities for students and to meet student learning needs.
 - Base funding on the average revenue limit among the entities that merge.
 - Follow the existing California *Education Code* regarding K–12 unification.
 - Adopt flexibility in credentialing requirements to allow the expansion of instructional opportunities available to students.

- Increase the number of California Partnership Academies from the current 478 academies to 1,000 academies and provide annual cost-of-living adjustments to increase funding for individual academies.

Change the School and Program Finance System to Increase Students' Performance.

- Replace the current seat-time-based school finance system with an equitable performance-based system designed to increase student performance.
 - Provide schools a base of funding calculated on the number of students enrolled annually.
 - Provide 80 percent of the base funding to high schools for the number of students enrolled annually, plus 20 percent of the funding tied to the number of students graduating and the number of students remaining in school annually. A school district would not be penalized if students achieved early attainment of mastery and moved on to college or careers.
- Provide school districts with incentives to meet essential state priorities to increase performance.
- Provide incentive funding to recover student dropouts, paid upon the students' completion of high school.
- Provide an incentive for school districts and partnered community college districts that have adopted dual enrollment and/or dual credit policies and programs that have proven to be successful.
- Provide districts an incentive for substantially closing the achievement gap.
- Limit incentives to a total capped percentage of base funding, set annually in the state budget.
- Provide start-up grants to schools adopting the multiple pathways approach, utilizing the existing Specialized Secondary Program model that makes four years of funding available for intensive planning and implementation, after which the districts rely on existing base funding.

Expand the Accountability System to More Accurately Reflect High School Students' Performance.

- Expand the number of measures within the Academic Performance Index (API) to include rates of completion of college entrance requirements, career technical education program completion and certification, school graduation rates, and dropout recovery rates.
- Develop postsecondary and career readiness measures and annual targets that reflect the expectations of colleges and employers and incorporate these into the state's accountability system.

- Set statewide goals for improving California's high school graduation rates and college and career preparation readiness rates to help measure progress towards reducing the high school achievement gap.
- Enhance the rigor and relevance of the state's high school graduation requirements through the alignment of these requirements with the expectations of colleges and employers.
- Evaluate high school student performance from high school to postsecondary education and employment, to improve program performance.
- Establish model program quality indicators through which pathways can be evaluated locally on a regular basis.
- Collect and analyze data on work-based learning and counseling/guidance outcomes through the California Longitudinal Pupil Achievement Data System (CALPADS) to evaluate and improve services.

Expand Curriculum and Instruction Opportunities to Allow for the Expansion of the Multiple Pathways Approach.

- Require all school districts with high schools to develop and adopt programs of study that identify the courses a student must complete and/or performance benchmarks a student must attain to complete high school and to transition into postsecondary education and related careers.
- Require all schools adopting pathways to include rigorous CTE instructional options within each year of high school.
- Allow California Partnership Academies to include students for four years rather than the current three years.
- Establish a career preparation graduation requirement for all students, in which students must demonstrate mastery of career technical, personal career management, financial literacy, and digital literacy skills.
- Require individual learning plans for all students to guide middle and high school students' preparation for entry into postsecondary education and careers.
- Provide districts the explicit ability to offer synchronous and asynchronous distance learning courses and programs adopted under local board policy to increase student access to effective instructors, programs, and resources not available within their high schools.
- Develop California virtual high schools, providing access to any California student or school district, to enable students to meet high school graduation requirements and prepare for college and career.
- Feature pathways curricula, assessments, work-based-learning models, and in-school support strategies in existing online clearinghouses, such as the Brokers of Expertise Web site (<http://www.boepilot.org>).

- Expand the support networks that provide curriculum and instruction knowledge and resources targeted at improving student achievement (e.g., Advancement for Individual Determination [AVID] program, University of California subject matter projects, CTE Online).
- Expand the funding available to the University of California's Curriculum Integration Project to enhance the ongoing efforts to increase the number of new CTE courses that meet the requirements for courses accepted for public university admission purposes.
- Include interdisciplinary and problem-based learning strategies as a required element within the development of the California curriculum frameworks.

Enhance Professional Development and Other Strategies to Increase Teachers' Effectiveness and Ability to Be Successful in the Multiple Pathways Approach.

- Provide regional professional development support for academic and CTE teachers, counselors, and administrators to improve the use of integrated rigorous curricula in their classrooms, including how to team-teach and make effective use of the longer class periods in pathways.
- Require the California Commission on Teacher Credentialing to incorporate problem-based pedagogies and other innovative instructional strategies as core competencies for any single subject secondary teacher, CTE teacher, pupil personnel services, and administrative services credential.
- Develop a pathways teaching credential authorization that would combine the competencies required within a traditional academic credential and a CTE industry sector credential.
- Provide start-up grants to the California State University and the University of California to create CTE and multiple pathways credential teacher education programs.
- Require that districts ensure the equitable distribution of teachers among high schools, based on subject matter expertise, related skills, and effectiveness.
- Streamline the teacher preparation system to allow the acquisition of an academic, CTE, or pathways teaching credential within a four-year baccalaureate program.
- Provide for a pathways concentration within the Beginning Teacher Support and Assessment program.

Ensure That the Transition from Middle Grades to High School Prepares Students for High School, Including Making Informed College and Career Choices.

- Define the purpose of middle grades as preparing students with the knowledge, skills, and abilities necessary for success in high school, incorporating discovery and exploration of educational and career opportunities.
- Provide models for articulation and alignment of middle and high school curricula and related professional development to improve student transitions.

- Provide planning and start-up grants to develop exploratory CTE programs within middle grades that articulate with area high school CTE programs, and provide parents and students with the resources and information to make informed college and career choices.

Provide Support and Counseling That Students Need to Succeed.

- Establish maximum caseload levels for all secondary guidance counseling and student support personnel to ensure that students in middle grades and high school receive access to necessary counseling and support services.
- Expand the role and funding of the California Career Resource Network to offer interactive Web-based college and career resources and advisement to individual middle and high school students throughout the state.
- Require pathways to incorporate Response to Instruction and Intervention (RtI²) strategies to support and maximize available personalized support for students experiencing learning or behavioral challenges.
- Require that all California local Workforce Investment Boards provide training accessible to all high school students within their service region on how to access and utilize California's One-Stop Business and Career Center system.

Modify the Mission, Structure, and Functions for Regional Occupational Centers and Programs.

- Modify the ROCP mission, structure, and functions to provide statewide systemic support to increase school district capacity to offer career technical education and to support pathways using the multiple pathways approach.
 - Change the ROCP name to reflect a new mission, the Regional Career Preparation Authority (RCPA), and utilize existing ROCP funding to support the CTE system. Consolidate the number of RCPAs serving regions or counties.
 - Provide RCPA governance through a board consisting of the county superintendents and representatives from each school district within the service area appointed by each school district board of education. If a single school district qualifies as a region, the district school board would serve as the governing body.
 - Designate the corresponding county office of education, joint powers authority agency, or single school district to serve as the local educational agency for fiscal and administrative purposes, receiving RCPA funds directly from the state.
 - Limit RCPAs to 5 percent administration, 10 percent capacity building, and 85 percent for CTE pathways and courses.
 - Provide school districts from 50 percent to 90 percent funding for each approved CTE course from the RCPA, with the school district providing the matching funding

necessary to operate the course. Funding allocations would be made to participating districts in a way that ensures substantially equitable distribution of funds.

- Require school districts upon the establishment of a course, and biennially thereafter, to demonstrate to the RCPA that there is a current or future labor demand for the pathway, each CTE course is part of a viable CTE pathway, there is no unnecessary duplication of the program within the region, there is articulation with postsecondary institutions, and the course meets established administrative and performance standards.
- Require the RCPA to have a representative business and labor advisory committee to advise the governing board on labor market needs and the curriculum offered across the region. Each district pathway would also be required to have a local business and labor advisory committee to assist the high school in implementing rigorous and relevant CTE courses and pathways.
- Provide professional development and instructional resources through the RCPA to member school districts and coordinate all related business, accountability, and program support functions related to pathways and CTE.
- Distribute federal Carl D. Perkins (Career and Technical Education Improvement Act of 2006) funding through the RCPAs.
 - Define RCPAs as meeting the conditions of a consortium under the Perkins Act.
 - Require each RCPA to develop a regional plan guiding the expenditure of Perkins funding within the region.
 - Require the RCPA to prepare and submit annual applications, data, accountability, and fiscal reports to the CDE.
- Distribute all other state and federal career technical education funding through the RCPA system, and provide the associated oversight and support necessary.

Increase Work-Based Learning in Schools.

- Expand and sharpen the definition of work-based learning to allow for and encourage innovative, equitable, and pedagogically sound work-based-learning activities for students and faculty.
- Redefine the existing work experience function within high schools and the role of the work experience teacher to coordinate work-based-learning activities and local school-business engagement.
- Provide statewide models of how work-based learning embedded in both CTE and academic classes can help schools address the four components of pathways.
- Collect and track data on work-based learning through the state's CALPADS system.
- Provide school districts with guidance regarding insurance and labor law requirements when placing students in off-site, work-based learning locations.

Provide State Leadership That Strengthens the Multiple Pathways Approach.

- Create a statewide Multiple Pathways Advisory Board of leaders from the education, business, and civic communities, appointed by and reporting directly to the SSPI, to provide the SSPI with ongoing guidance to expand pathway programs in California's public schools.
- Provide administrative funding to the CDE to provide policy implementation, state and regional coordination, resource development, and accountability oversight for the expansion of pathways and high school redesign efforts.
- Incorporate effective pathway strategies into state policies and strategies for turning around the state's persistently lowest-achieving high schools.
- Recognize in state policy the role and benefits of educational foundations, intermediary organizations, and coalitions in supporting the multiple pathways approach and systemic reform initiatives.
- Establish a statewide research agenda that incorporates input from key stakeholders to evaluate the effectiveness of the multiple pathways approach in preparing students for college and career.
- Design high-quality research studies that include longitudinal student-level and cohort designs to measure the effectiveness of pathway programs on improving student achievement.

PROPOSED 2010-2011 AGENDA FOR IMMEDIATE ACTION

The following three items are proposed for immediate action during 2010 and 2011 to provide a strong foundation for substantially improving California's high schools through the establishment and expansion of the multiple pathways approach.

ACTION ITEM 1

Establish a Multiple Pathways Advisory Board and Establish the Multiple Pathways Approach as Foundational to High School Improvement.

This action item includes policy recommendations from *Multiple Pathways to Student Success* that will serve to establish the multiple pathways approach as foundational to high school improvement and will ensure that the multiple pathways approach persists into the future.

- Revise the California *Education Code* to state the purpose of high school is to educate and prepare all students to be postsecondary and career ready upon high school graduation.
- Establish a statewide Multiple Pathways Advisory Board composed of leaders from the education, business/labor, and civic/community organizations, appointed by and reporting directly to the SSPI to:
 - Develop a plan with strategies and timelines for implementing the recommendations contained in *Multiple Pathways to Student Success*.

- Provide the SSPI with ongoing guidance in expanding pathways in California's public schools.
 - Promote the incorporation of effective pathway strategies into state policies and strategies for reforming secondary education in general and for turning around the state's persistently lowest-achieving high schools in particular.
 - Develop proposed statewide data, measures, and a research agenda incorporating input from key stakeholders to evaluate the effectiveness of pathways in preparing students for postsecondary and career opportunities.
 - Establish model program quality indicators that can be used locally to evaluate pathways.
- Utilize existing Web sites to feature curricula, assessments, resources, work-based-learning models, and in-school support strategies for pathways implementing the multiple pathways approach.
 - Allow schools adopting the multiple pathways approach to be eligible for SSPI waivers to more efficiently operate and adapt to the needs of students and communities pursuant to California *Education Code* Section 58509.

ACTION ITEM 2

Establish a Transformation High Schools Pilot Program.

The pilot would direct the SSPI to allow 20 school districts, on a competitive basis, to implement pathways that adopt core transformational concepts for five years. The core strategies will include the following actions:

- Implement a districtwide multiple pathway approach in all high schools.
- Incorporate small-sized schools and smaller groupings of students within new and existing high schools.
- Base high school graduation on demonstrating competency and mastery of rigorous, locally identified academic and career standards, and not on seat time.
- Identify rigorous programs of study that guide students through course sequences leading to mastery of standards, high school graduation, and transition to postsecondary education or employment.
- Adopt policies and agreements that promote dual enrollment and dual credit with community colleges and/or universities.
- Adopt problem-based instructional methodologies and applied learning within all subject areas.
- Implement the transformational requirements within existing resources.

- In exchange for implementing these transformational changes, districts will receive the following policy accommodations:
- Allow schools adopting the multiple pathways approach to be eligible for SSPI waivers to more efficiently operate and adapt to the needs of students and communities pursuant to California *Education Code* Section 58509.
- Provide participating school districts funding based on annual end-of-year student enrollment, not on scheduled minutes of attendance.
- Allow participating school districts to offer distance learning and enroll students in community college or university courses without financial penalty.
- Receive priority for competitive grant funding.
- Give eligible graduating students within participating school districts first priority on non-entitlement Cal Grants, admission to the California State University system, and admission to state-approved apprenticeship programs.

ACTION ITEM 3

Consolidate Career Technical Education.

This action item would consolidate the currently fragmented CTE system into a streamlined approach that supports districts in the development and efficient operation of pathway programs.

- Modify the ROCP legislated mission, structure, and functions to provide statewide systemic support to increase school district capacity to offer CTE and to support pathways.
 - Change the ROCP name to reflect a new mission, the Regional Career Preparation Authority, and utilize existing ROCP funding to support the system.
 - Provide RCPA governance through a board consisting of the county superintendents and representatives from each school district within the service area.
 - Provide professional development and instructional resources through the RCPA to member school districts and coordinate all related business, accountability, and program support functions related to pathways and CTE.
 - Distribute state and federal CTE funding through newly created RCPAs.
- Modify the *2008-2012 California State Plan for Career Technical Education* to increase the number of formalized programs of study to improve CTE programs and pathways.

Conclusion

California's schools face many challenges, but its educators, parents, businesses, communities, and many partners are nonetheless trumpeting hope as they join together to assert the importance of supporting students in achieving their dreams and becoming contributing members of society. The multiple pathways approach is not the only approach to high school reform and to the promotion of student achievement, but it is unique in the breadth of its mission and the depth of its commitment to serving the needs of all students. The principle of equity is foundational; this principle, coupled with a focus on research and inquiry, inspires change and is galvanizing local efforts.

Equally important, the approach — and the movement to bring the approach to scale — has put a spotlight on the need to address secondary school reform across the state. It has challenged us to question our assumptions and put into action what we know about *how* students learn best, *where* students learn best, and *what they need* to succeed in high school and to move boldly into the next stages of their lives. We are called upon to act, learn, and act again — in our relentless pursuit of a statewide educational system that can prepare all students for postsecondary education, careers, and true lifelong learning. We cannot wait until the budget or the economy improves — the nurses, bridge builders, electricians, scientists, air traffic controllers, writers, and teachers of the future are in our classrooms today. Now is the time to expand the statewide dialogue, break down the barriers we so lament, and get to work. The students depend on it; the future of the state depends on it.

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